BIOLOGICAL RESOURCES ENVIRONMENTAL PLANNING TECHNICAL REPORT BASEWIDE VEGETATION AND WILDLIFE SURVEYS AND HABITAT QUALITY ANALYSIS

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California
AIR FORCE FLIGHT TEST CENTER

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BIOLOGICAL RESOURCES ENVIRONMENTAL PLANNING TECHNICAL REPORT BASEWIDE VEGETATION AND WILDLIFE SURVEYS AND HABITAT QUALITY ANALYSIS

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Abstract: Surveys were conducted in 1992 and 1993 to establish baseline conditions for biological resources conditions at Edwards Air Force Base. Surveys were conducted in the five major zonal and azonal habitats found on the base: Joshua tree woodland, creosote bush scrub, halophytic phase saltbush scrub, arid phase saltbush scrub, and mesquite woodland. These surveys provided data for Habitat Quality Analysis, a method for estimating habitat quality through the development of unitless indices from quantitative field surveys for vegetation, herpetofauna, birds, large mammals, and small mammals. Fourteen criteria were used to determine these indices including the presence of sensitive species, species richness for vegetation and wildlife parameters, relative abundance for wildlife communities, vegetation structure, and the proportion of native plant species. Vegetation surveys indicated that creosote brush scrub supports the greatest diversity of plant species, and mesquite woodlands, the least. Large mammal relative abundance was highest in the mesquite woodland study areas and ten large mammal species were detected throughout the study area. Small mammal relative abundance was highest in mesquite woodland survey areas. Overall, 11 nocturnal small mammal species were trapped. Avian species richness and relative abundance increased with increasing vegetation structure with mesquite woodland surveys areas showing avian species richness and relative abundance values substantially higher than any other habitat. Herpetofauna species richness and relative abundance values were consistent among habitats with fifteen reptile species detected during the surveys. In most habitats, Habitat Quality Analysis indicated consistent habitat quality, with few areas having indices substantially higher or lower than the mean for a given habitat. Directional trends suggested creosote bush scrub and arid phase saltbush scrub had slight trends of increasing habitat quality from east to west across the base.

PURPOSE AND NEED FOR SURVEYS

On August 30, 1990, Edwards Air Force Base (AFB) was placed on the National Priorities List, making it subject to the federal facilities provisions of Section 120 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). This action required the Air Force to enter into a Federal Facilities Agreement (FFA) with the U.S. Environmental Protection Agency (EPA) for the implementation of environmental restoration efforts under the Installation Restoration Program (IRP). The FFA was signed by the Air Force, EPA, and California Department of Health Services (now referred to as Cal/EPA-DTSC) on October 16, 1990. The FFA requires compliance with many federal and state laws, and also requires the establishment and implementation of appropriate procedures for the remediation of hazardous materials releases. In compliance with this agreement, any ground disturbance associated with testing and remediation may not occur until environmental resources inventories are completed.

Edwards AFB contains 10 Operable Units (OUs), which include 408 IRP sites and Potential Release Locations (PRLs) where hazardous waste or toxic materials may have been intentionally or inadvertently released. Although many of these sites and PRLs are concentrated in developed areas, several are also scattered throughout the base. Site investigations to determine types and sources of contamination may include installation of soil borings and groundwater monitoring wells, and performance of seismic and electromagnetic surveys. Because impacts to biological resources resulting from IRP activities could occur in both developed and relatively undisturbed areas of the base, biological studies were conducted throughout the base. These studies included surveys of vegetation and wildlife and habitat quality analysis for the zonal and azonal habitats on the base. In addition to the vegetation and wildlife studies discussed in this report, focused sensitive species surveys were also conducted (Mitchell *et al.* 1993).

Study Area

The study area for these surveys coincides with the boundaries of Edwards AFB (Figure 1). Surveys were not conducted in areas of dry lake beds or other areas that support no vegetation.

Five zonal habitats and one major azonal habitat are present on the base (Figure 2). Creosote bush scrub is the most common community, comprising approximately 40 percent of the study area. This community is dominated by *Larrea tridentata* (creosote bush) and often appears similar to Joshua tree woodland (approximately 20% of the study area), except for the lack or scarcity of *Yucca brevifolia* (Joshua trees). Common associates in both communities include *Eurotia lanata* (winterfat), *Hymenoclea salsola*, and *Ephedra nevadensis* (Mormon tea). Halophytic phase saltbush scrub comprises approximately 20 percent of the study area and is dominated by four species of saltbush: *Atriplex spinifera*, *A. confertifolia*, *A. Canescens*, and *A. lentiformes*. Arid phase saltbush scrub (approximately 18% of the study area) is dominated by *Atriplex polycarpa* with *Ambrosia dumosa* (burro-weed), *Acamptopappus sphaerocephalus* (goldenhead), and *Hymenoclea salsola* among the common associates. *Distichlis spicata* (Saltgrass) is abundant in the understory of halophytic phase saltbush scrub but is uncommon in arid phase saltbush scrub. Mesquite woodland is an azonal habitat limited to desert washes in the south-central part of the base, comprises only about 1 percent of the study area, and is dominated by *Prosopsis glandulosa* ssp. *torreyana* (mesquite) with *Artemesia tridentata* ssp. *parishii* (basin sagebrush) and *Suaeda moquinii* (seep-weed) as common associates.

METHODS

Existing information about biological resources within the study area was gathered, including a review of existing literature and field surveys, and consultation with local experts. Within the study area, 60 1-square-mile sections were randomly selected by computer generation for HQA survey areas and were numbered from 1 to 60. Surveys

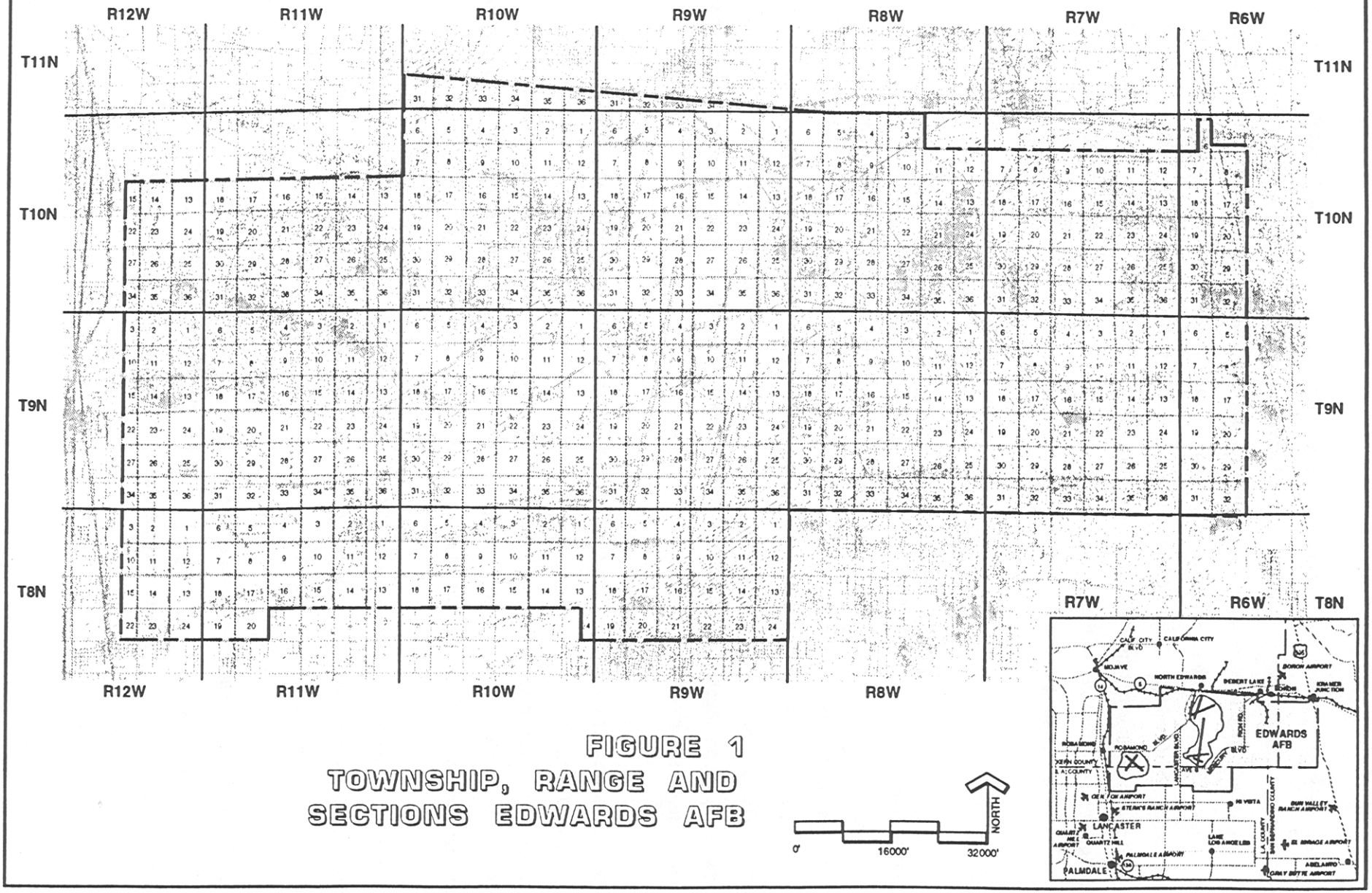


FIGURE 1
TOWNSHIP, RANGE AND SECTIONS EDWARDS AFB

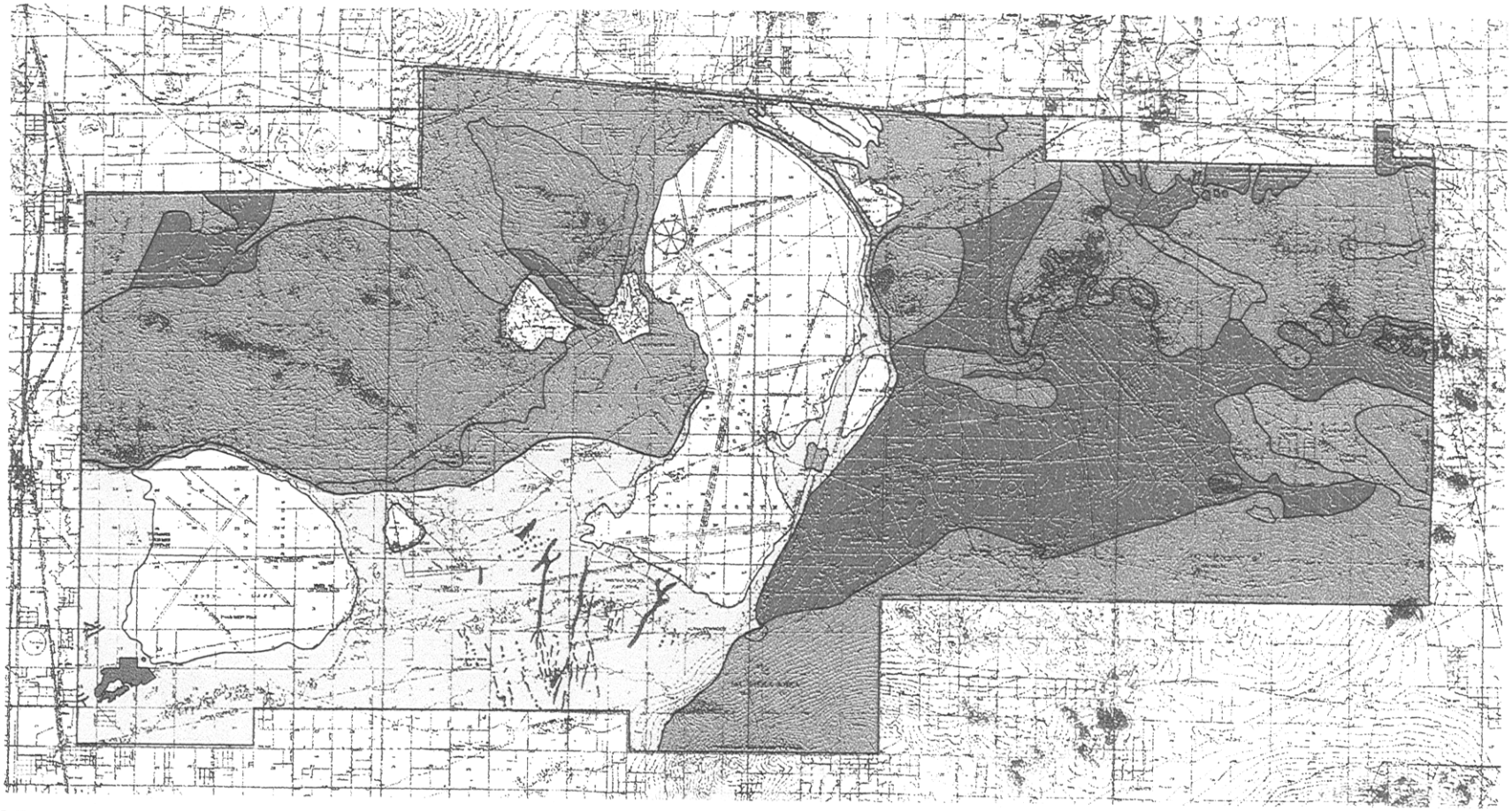
areas were selected on the basis of a stratified sampling design with each major habitat constituting a stratum. The number of survey areas selected per habitat were therefore proportionate to the amount of land occupied by each zonal habitat and the azonal mesquite woodlands. Transects for wildlife surveys were run in a straight 500-meter line from the center of each survey area in the dominant habitat. Two 50-meter vegetation transects were placed across each wildlife transect and were bisected by the wildlife transect. Occasionally transects were not run from the center of the section because it would not have been possible to sample the habitat that covered most of the survey area, or because the center of the section was inaccessible. Figures 3 through 6 present vegetation and wildlife transect locations on the base.

Vegetation Surveys

The vegetation classification of habitats in the study area is modified from those in Barbour and Major (1977) and CDFG descriptions of terrestrial natural communities by Holland (1986) with plant nomenclature following Munz (1974). The definition of a Joshua tree woodland used for these surveys is an area that contains at least 100 Joshua trees per square mile (Keeler-Wolf, personal communication 1992). Surveys were conducted by the line intercept method. This method allowed the characterization of the habitat by providing estimates of percent relative cover and species composition (Mueller-Dombios and Ellenberg 1974). Bare ground, rock, and litter were also measured by the line intercept method when present in plant interspaces.

Several determinations of cover values were used to characterize habitats. Cover describes the percentage of the transect area occupied by a species, group of species, or other characteristics such as bare ground, rock, or litter (Barbour, Burk, and Pitts 1980). Total overlay cover is the sum of all species cover (Westman 1985). Relative cover is the sum of all species or group of species (e.g., all shrubs) given as a percentage of the total overlay cover. Projective cover is defined as 100 percent cover diminished by non-vegetated cover (Barbour, Burk, and Pitts 1980).

The vertical structure of each habitat was divided into three layers: terrestrial surface, shrub, and tree canopy (modified from Short 1984). The terrestrial surface layers extend to 0.5 meter above the surface. The shrub layer includes vegetation which extends from 0.5 meter to 4.0 meters in height. The tree canopy layer of overstory included all Joshua and mesquite trees, even those less than 4.0 meters in height because they add a significant structural element not found in the shrub species. To more accurately estimate plant species richness, estimates of ground cover were made for all species present in a 200-square-meter circular plot. Each plot was bisected by the vegetation transect. Species richness was calculated for native versus introduced species.



LEGEND

- Halophytic Phase Saltbush Scrub
- Arid Phase Saltbush Scrub
- Creosote Bush Scrub
- Joshua Tree Woodland
- Mesquite Woodland
- Lake Bed/Urban Landscape (Within Base Boundaries)
- Piute Ponds
- * From CSC, 1991

FIGURE 2
ZONAL HABITATS AND OTHER MAJOR FEATURES OF EDWARDS AFB

NORTH

0' 16000' 32000'

Source: Modified from D. Charlton, 1991

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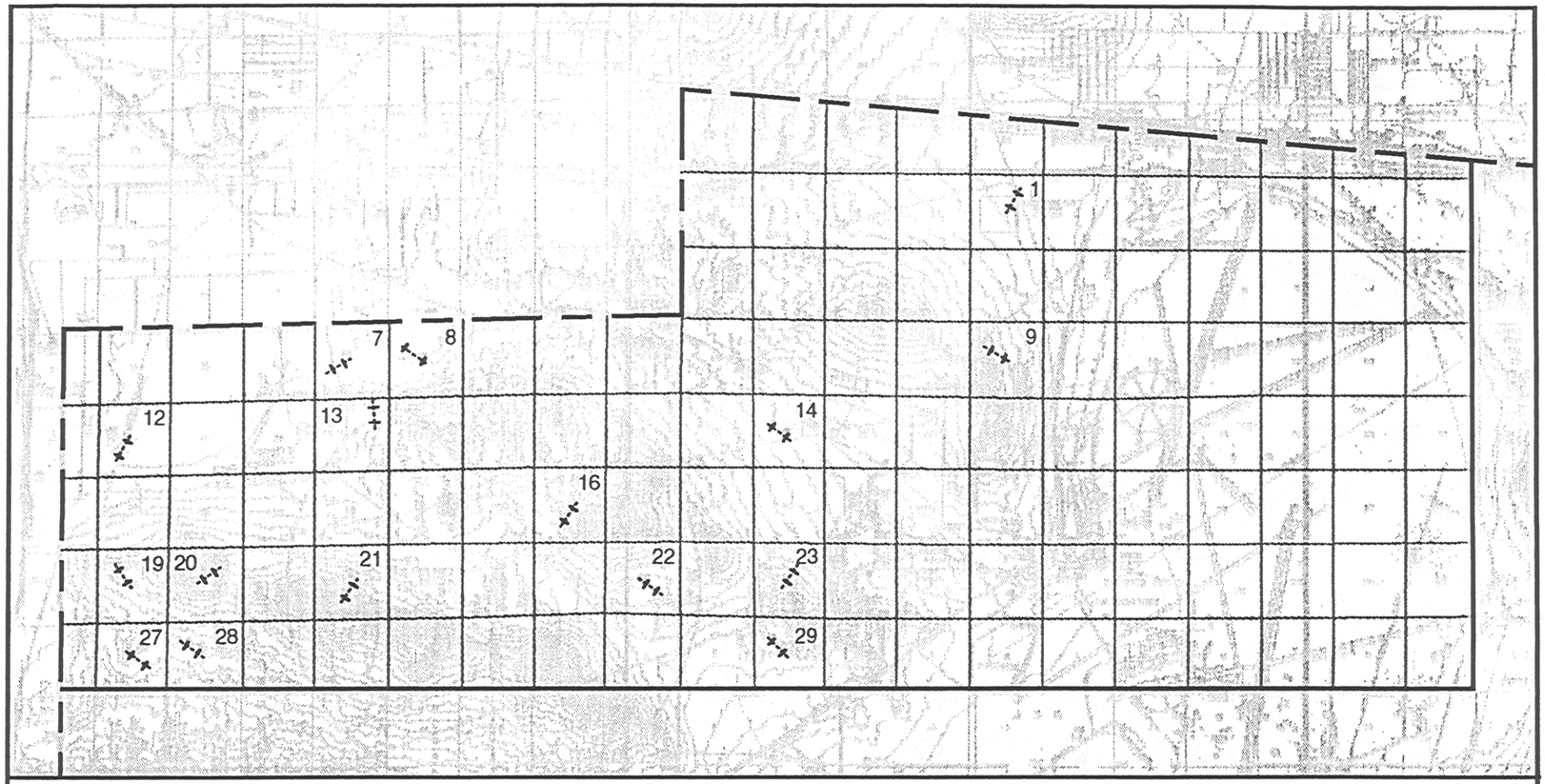
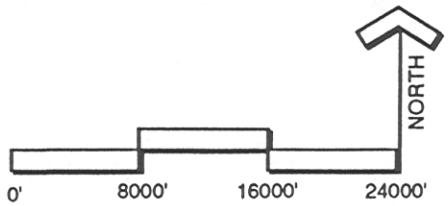
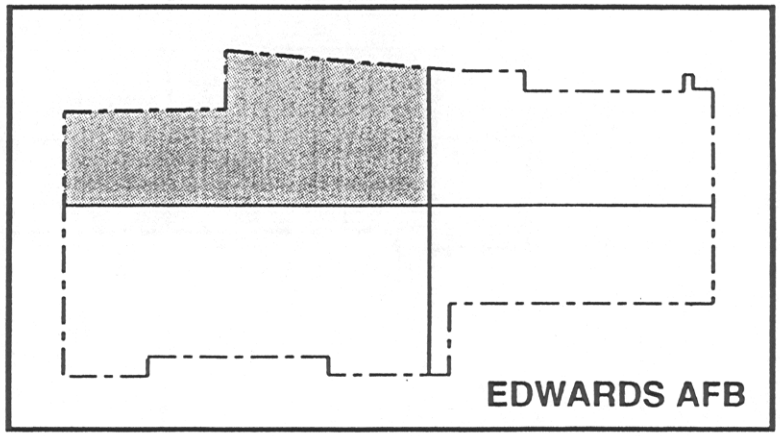


LEGEND

- Study Area
- Wildlife Transects
- Vegetation Transects

FIGURE 3
HQA WILDLIFE
AND VEGETATION
TRANSECT LOCATIONS





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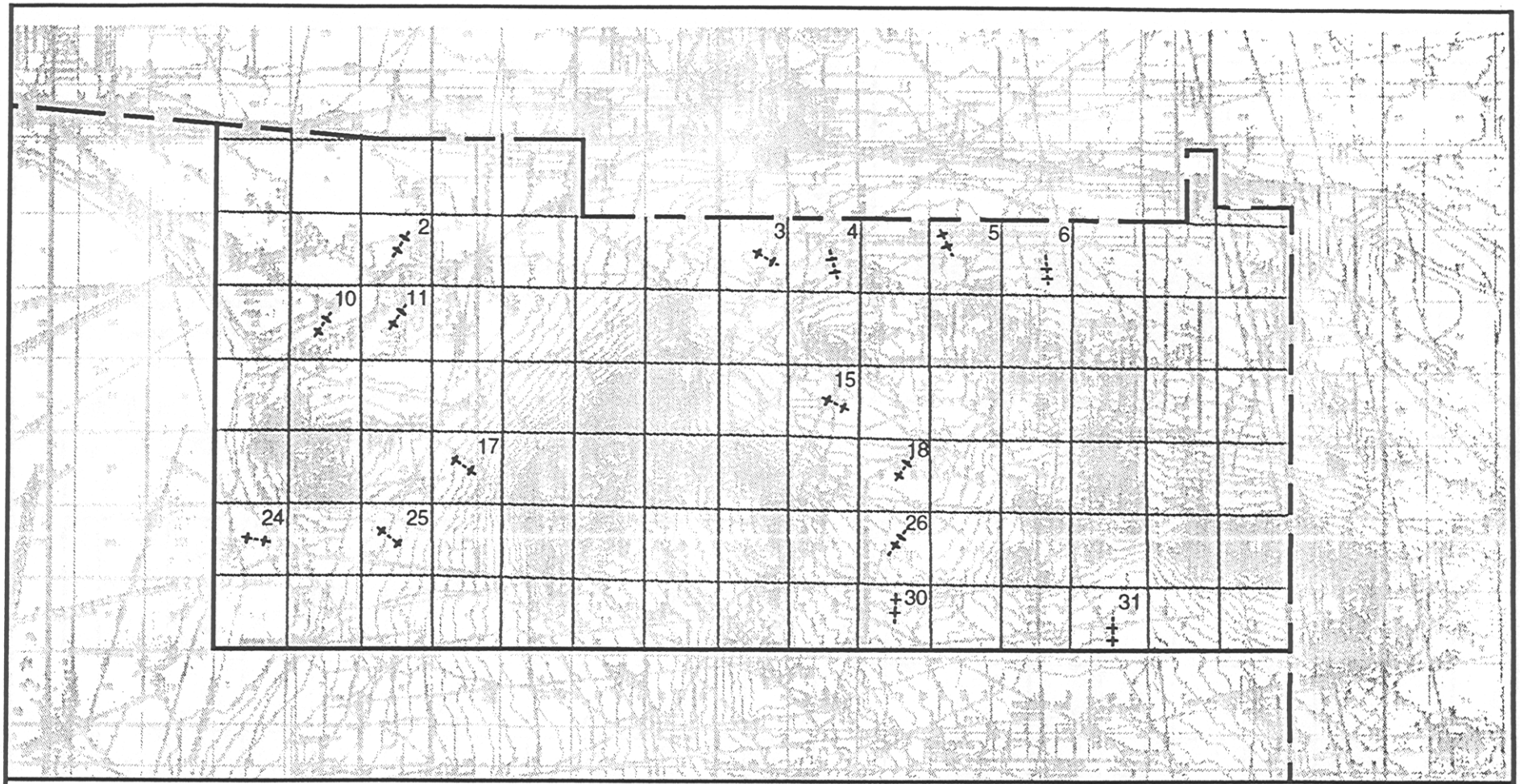
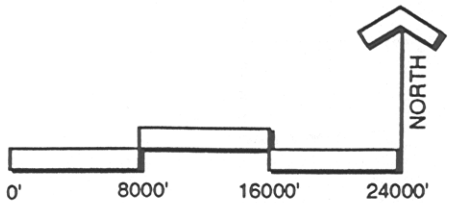
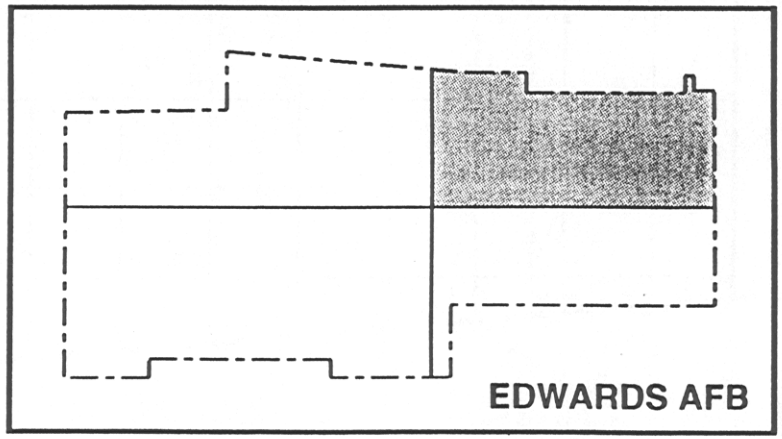


LEGEND

- Study Area
- Wildlife Transects
- Vegetation Transects

FIGURE 4
HQA WILDLIFE
AND VEGETATION
TRANSECT LOCATIONS





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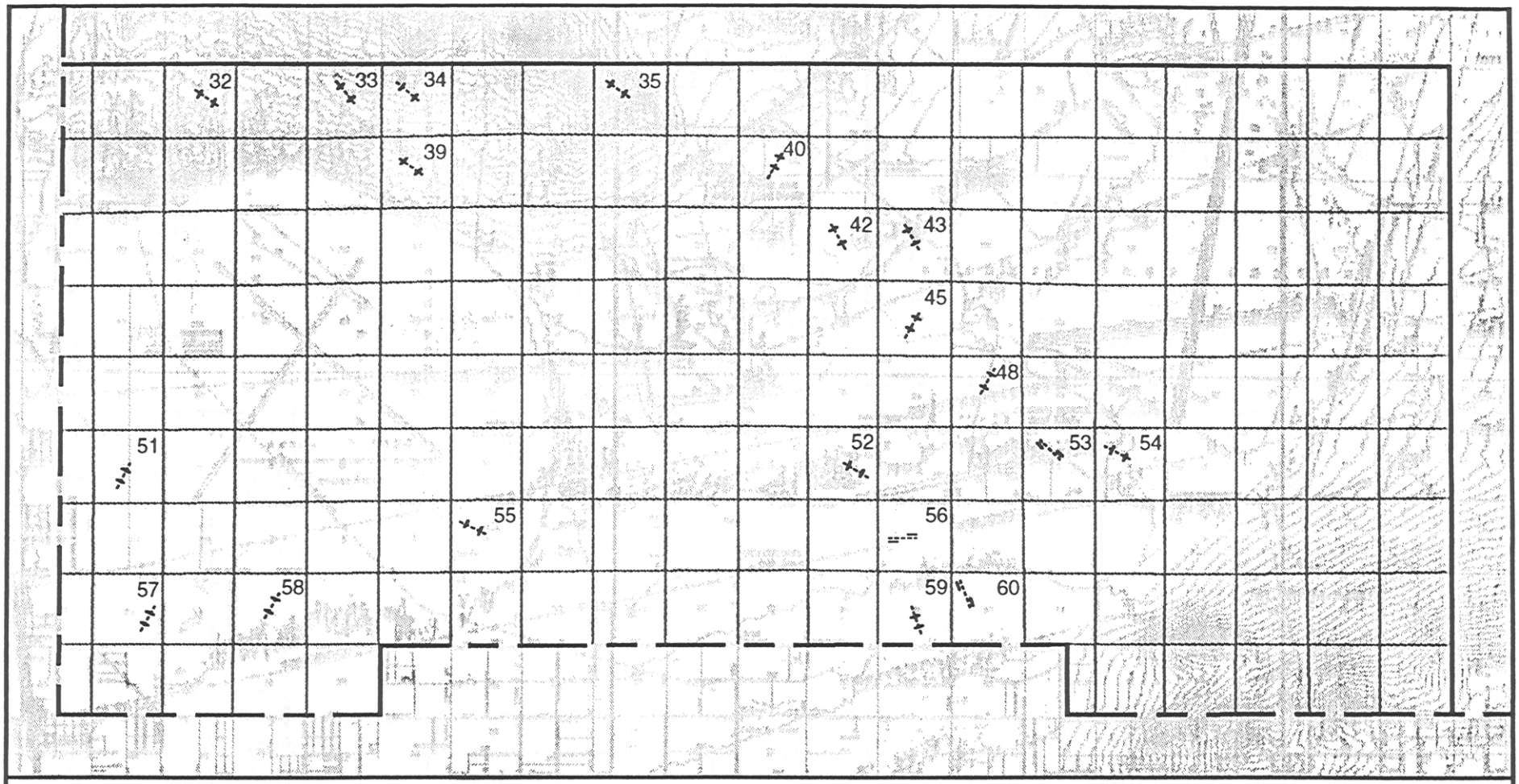
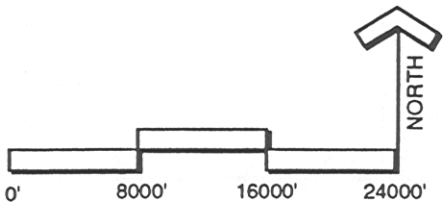
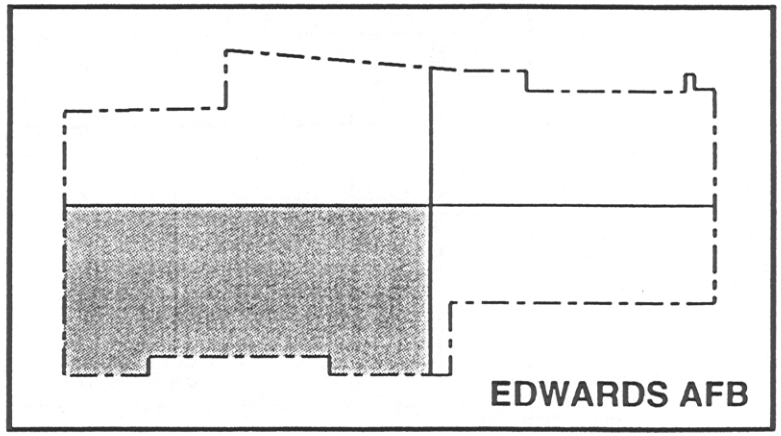


LEGEND

- Study Area
- Wildlife Transects
- Vegetation Transects

FIGURE 5
HQA WILDLIFE
AND VEGETATION
TRANSECT LOCATIONS





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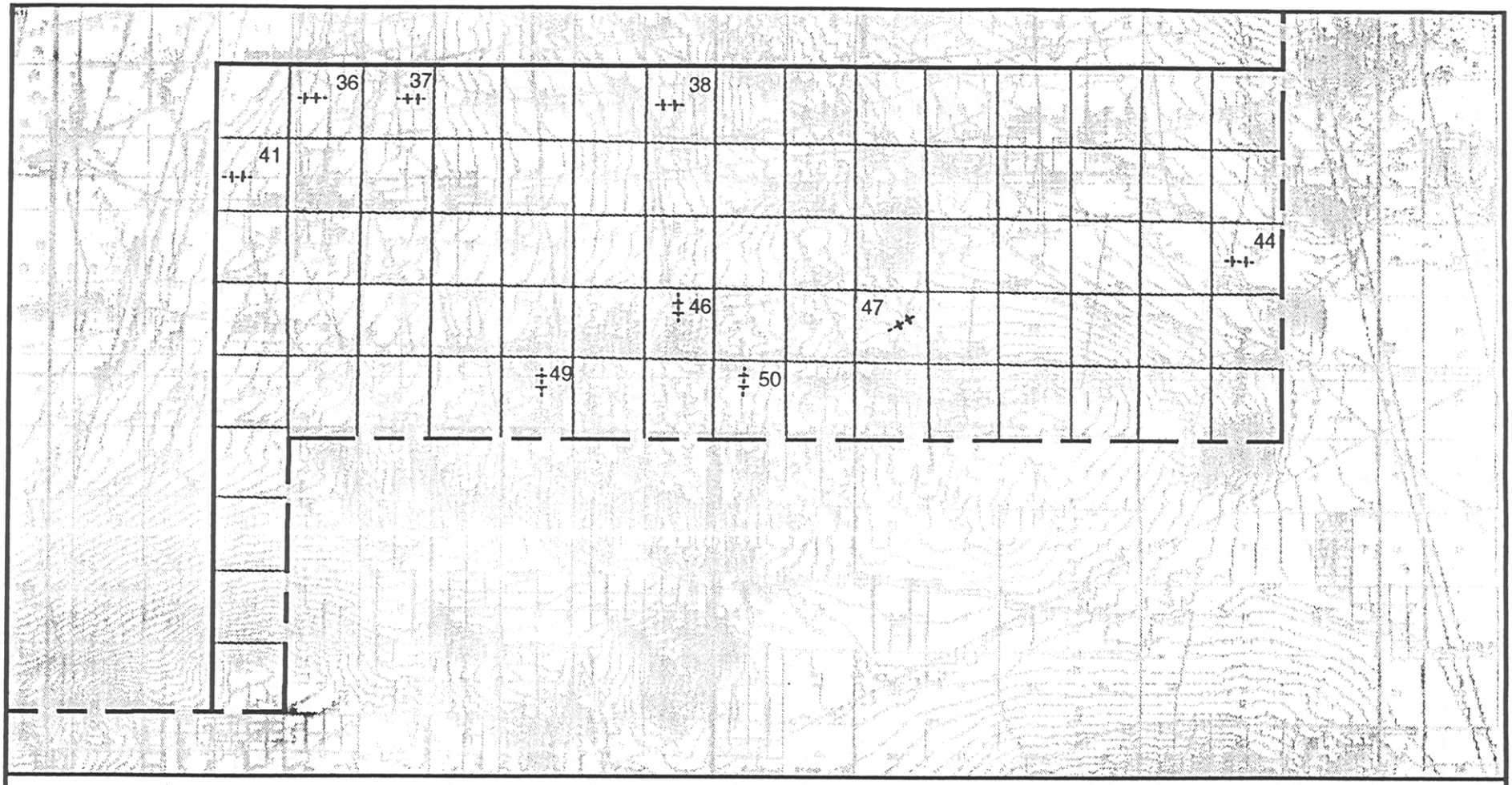


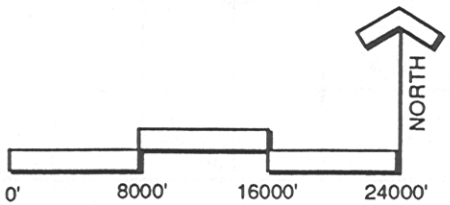
LEGEND

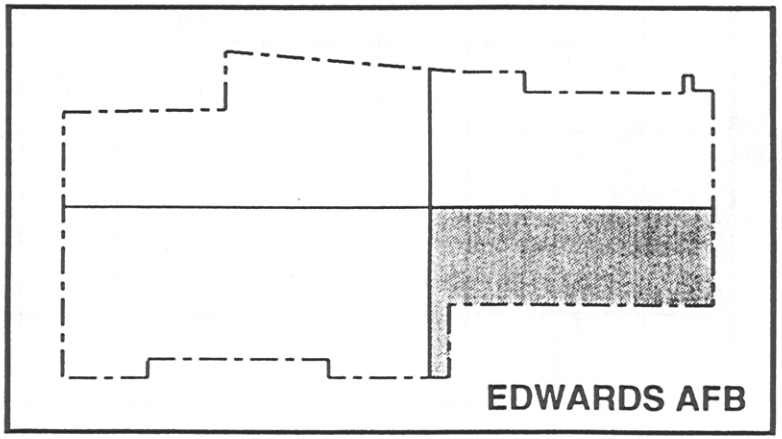
Study Area

Wildlife Transects

Vegetation Transects

FIGURE 6
HQA WILDLIFE
AND VEGETATION
TRANSECT LOCATIONS





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Additional surveys were conducted in Joshua tree and mesquite woodlands where two 1-hectare plots were surveyed near each of the 50-meter vegetation transects. All Joshua trees in the 1-hectare plots were measured for height and diameter at breast height (dbh). In mesquite woodlands, heights of all mesquite trees within the 1-hectare sample plots were measured. Tree heights were estimated with the use of a clinometer. Diameter at breast height was recorded for Joshua tree specimens taller than 1.4 meters. The dbh of mesquite trees was not measured because mesquite trees have multiple boles and it is often difficult to determine which trunk is the largest. Heights of dominant shrubs in each 50-meter transect were recorded. The mean average height was calculated for dominant shrub species using three specimens.

Wildlife Surveys

Transects measuring 500 meters long were established in each HQA survey area. Following HQA methodology, wildlife communities of herpetofauna, birds, large mammals, and small mammals were surveyed along these transects. Survey methodologies were selected to reflect characteristics of the wildlife community to be surveyed including unique behavioral characteristics such as diurnal versus nocturnal behavior patterns, and mobility. Species richness and relative abundance were used to characterize wildlife communities.

Herpetofauna. A census of herpetofauna species was conducted along wildlife transects for three consecutive days during times when temperatures exceeded 67 degrees Fahrenheit using a survey pattern similar to that used for large mammals. However, during these surveys, the underside of large debris such as trunks of Joshua trees, rocks, and boards were examined for herpetofauna species. Herpetofauna relative abundance was expressed as individuals per 3 hectares.

Birds. During the field effort, the centerline of each transect was slowly walked once in the early morning and all birds detected were noted, recording species, number of individuals, sex, age (adult or juvenile), and general behavior of each individual or group. All birds observed within 120 meters on either side of the 500-meter-long wildlife transect centerline were recorded. Relative abundance is expressed as individuals per 40 hectares. The number of individuals represented by each observation was determined by taking the highest of twice the number of singing males (assumed to be paired), or the number of singing males plus the number of all other individuals.

Twice the number of singing males was used for species known to breed in the study area. A census of transient or winter resident species was conducted using this methodology. Only species determined to be definitely using a survey area were included in the abundance calculations. Far-ranging species such as red-tailed hawk (*Buteo*

jamaicensis), common raven (*Corvus corax*), Vaux's swift (*Chaetura vauxi*), and swallows were not included. Localized species that were detected only when flying over a transect were also not included in the calculations.

Large Mammals. Surveys were conducted on three consecutive days in the early morning to census large mammal populations. Large mammals are defined here as those which could not be surveyed by nocturnal Sherman™ trapping efforts because of their size or behavior. Observations of individuals or sign (e.g. scat, tracks) within 30 meters of either side of the transect centerline were recorded. On the first day of surveys in each survey area, a zigzag transect was surveyed by walking the central 20 meters of the transect area (10 meters on either side of the transect line). A similar pattern was walked on the second and third day in the 20-meter area on either side of the first day's transect area. Observations of individual animals or sign (e.g., scat, burrows, or tracks) were recorded. The transect area was within 30 meters of either side of the transect centerline making it 500 meters long and 60 meters wide (3 hectares). Large mammal relative abundance is expressed as the number of individuals per 3 hectares.

In addition to diurnal surveys on wildlife transects, carnivores were surveyed using nocturnal track (scent) stations, which consisted of 1-square-meter patches of sifted flour baited with sardines. Track stations were located in or near the transect area and were baited on three consecutive evenings, concurrent with the diurnal surveys. Tracks left in the flour were recorded during the survey the following morning. Species detected only by track stations were not included in species richness or relative abundance calculations because the scent of track stations may draw animals from outside the survey area.

Small Mammals. Nocturnal live-trapping studies were conducted to evaluate populations of small mammals. A grid of 100 Sherman™ traps (measuring 12"x3"x3.5" or 9"x3"x3.5") was established at each survey area and maintained for three consecutive nights, for a total of 300 trap-nights. Traps were arranged in four lines of 25 traps each spaced 10 meters apart and centered on the wildlife transect, for a total area of one hectare. In mesquite woodlands, two lines of 50 traps each, centered on the transect centerline, were used to ensure that all traps were within the habitat. Captured animals were marked using waterproof markers so that recaptured animals could be identified. Relative abundance for small mammals represents the sum of new captures each day and is reported as individuals per hectare.

Habitat Quality Analysis

In 1989, Tetra Tech, in consultation with the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG), and the Metropolitan Water District of Southern California (MWD), developed a method of assessing habitat quality (Metropolitan Water District 1991). Known as Habitat Quality Analysis (HQA), this

system uses data obtained from vegetation and wildlife field surveys to yield a unitless index of habitat quality based on:

1. The identification of major habitat types on the base for a number of sensitive species. The results of those surveys are presented in Mitchell *et al.* 1993;

2. The determination of a theoretical prime example of each particular habitat that can be used as the standard against which other surveyed areas can be compared; and

3. The selection of measurable biological variables which are quantitative indicators of habitat quality respect to these ecological concerns. Criteria were identified and are described below.

Sensitive Species. An important indicator of the quality of a habitat is the number of threatened, endangered, or otherwise sensitive species present. The quality of habitat for sensitive species was evaluated based on their presence at the surveys area and their degree of rarity and legal status. Table 1 lists sensitive species known to exist on Edwards AFB and HQA categories and relative weightings.

Species Richness. Species richness represents the number of different species present in the survey area and is a contributing factor in species diversity. Species richness represents five criteria as it is measured for plants, large mammals, small mammals, birds, and herpetofauna.

Relative Abundance. Relative abundance is the number of individuals detected during surveys in each survey area and is reported for each wildlife community. Relative abundance represents four criteria as it is measured for large mammals, small mammals, birds, and herpetofauna.

Vegetation Structure. The number of vegetation layers present, number of tree boles present, and percent cover of each vegetative layer were evaluated for each habitat. Vegetation structure represents two to three criteria depending on the number of vegetative layers present including the percent cover of the terrestrial surface, shrub layer, and tree canopy. At Edwards AFB, only Joshua tree woodlands and mesquite woodlands support a tree layer.

Proportion of Native Plant Species. The percentage of native plant species is a measure of the degree of degradation of a habitat. A habitat with a higher percentage of native plant species is generally considered to be of better quality as habitat for native wildlife species than habitats dominated by introduced species.

Table 1

Endangered, Threatened, and Sensitive Species Detected During 1992-93 Studies on Edwards AFB and HQA Relative Value

Scientific Name	Common Name (Munz)[3]	Federal/State/CNPS Status[1]	HQA Relative Value[2]
Plants			
Astragalus preussii var. *laxiflorus*	milkvetch	none/none/1B	6
Calochortus striatus	mariposa lily	SC/none/1B	6
Canbya candida	poppy	none/none/1B	6
Chorizanthe spinosa	N/A	none/none/4	2
Cymopterus deserticola	N/A	none/none/1B	6
Eriophyllum mohavense	N/A	SC/none/1B	6
Oxytheca luteola	N/A	none/none/4	2
Loeflingia squarrosa var. *artemisiarum*	N/A	none/none/1B	6
Muilla coronata	muilla	none/none/4	2
Reptiles			
Gopherus agassizii	Desert tortoise	T/T/none	10
Sauromalus obesus	Chuckwalla	SC/none/none	5
Uma scoparia	Mojave fringe-toed lizard	none/CSC/none	4
Birds			
Accipiter cooperi	Cooper's hawk	none/CSC/none	4
Aquila chrysaetos	Golden eagle	none/CSC/none	4
Asio flammeus	Short-eared owl	none/CSC/none	4
Asio otus	Long-eared owl	none/CSC/none	4
Athene cunicularia	Burrowing owl	none/CSC/none	4
Buteo regalis	Ferruginous hawk	SC/CSC/none	5
Buteo swainsoni	Swainson's hawk	none/T/none	10
Chaetura vauxi	Vaux's swift	none/CSC/none	4
Circus cyaneus	Northern harrier	none/CSC/none	4
Falco mexicanus	Prairie falcon	none/CSC/none	4
Lanius ludovicianus	Loggerhead shrike	SC/none/none	5
Toxostoma lecontei	Le Conte's thrasher	SC/CSC/none	5
Mammals			
Spermophilus mohavensis	Mohave ground squirrel	SC/T/none	10
Taxidea taxus	American badger	none/CSC/none	4

Notes: [1]Federal/State/CNPS Status
Federal Status:
T = Threatened
SC = Special concern species
State Status:
T = Threatened
CSC = California species of special concern
California Native Plant Society (CNPS) Status:
1B = Plants rare, threatened, or endangered in California
4 = Plants of limited distribution
[2]HQA Value
10 = Federally endangered, federally threatened, state endangered, state threatened
9 = Federally proposed, federal candidate, state candidate
6 = CNPS list 1B
5 = Federal species of concern
4 = CNPS list 2, state species of species concern
3 = CNPS list 3
2 = CNPS list 4
[3] Common Name
N/A = No common name available

Each criterion used in HQA was weighted according to its perceived value in evaluating overall habitat quality and according to the level of confidence in the degree of accuracy of the data for that criterion. The values of criteria were determined through vegetation and wildlife surveys. A theoretical prime was determined for each habitat. The theoretical prime uses the highest individual value for each criterion from all survey areas in that habitat. Each survey area was then compared to the theoretical prime for that habitat. The theoretical prime received the ranking of 1.00 and survey areas were described as a percentage of that prime.

Global Positioning System

Magellan System Corporation Nav 5000 Pro™ navigation units were used to navigate to the center of each section to be surveyed and locations were recorded to aid in relocating transects in the future. Position fixes were recorded for the 0- and 500-meter points of each wildlife transect. A small degree of variation is normal in the system, and positional data are reliable to ± 100 meters in the field. Using a base station and post-processing procedures, the positions recorded in the field were corrected for a greater degree of accuracy (up to ± 10 meters).

RESULTS

Vegetation Surveys

Field surveys for vegetation were conducted between March 1 and May 1, 1993. Data tables for vegetation are presented in Appendix A and summarized below.

Joshua Tree Woodland. Vegetation data for Joshua tree woodland transects are presented in Appendix A-1. Mean total overlay cover in Joshua tree woodlands ranged from 49.1 percent in Transect 26 to 120.6 percent in Transect 7. Mean projective cover was lowest at 35.0 percent in Transect 31, and highest at 65.1 percent in Transect 38. *Yucca brevifolia* (Joshua trees) had a mean percent cover of 6.9 overall. In Joshua tree woodland transects, mean species richness ranged from 14.5 in Transect 4 to 48.5 in Transect 7. The mean total percent of native species varied from 86.8 percent in Transect 4 to 94.0 percent in Transect 17. The range of mean heights of the dominant shrub species present in Joshua tree woodland transects were:

- *Ambrosia dumosa* (burro-weed), 36.7cm in Transect 36 to 56.3cm in Transect 25;
- *Ceratoides lanata* (winterfat), 48.0cm in Transect 30 to 79.0cm in Transects 7 and 25;

- *Hymenoclea salsola*, 49.0cm in Transect 36 to 92.3cm in Transect 7; and
- *Larrea divaricata* var. *tridentata* (Creosote bush), 137.3cm in Transect 38 to 234.0cm in Transect 17.

Other common plant associates in Joshua tree woodlands included *Acamptopappus sphaerocephalus* (goldenhead), *Atriplex canescens* ssp. *canescens*, *Ephedra nevadensis* (Mormon tea), *Grayia spinosa* (hop-sage), *Haplopappus cooperi*, *Lycium andersonii* (box-thorn), *Amsinckia tessellata* (fiddleneck), *Camissonia campestris*, *Coreopsis bigelovii* (coreopsis), *Eriophyllum wallacei*, *Malacothrix glabrata* (desert dandelion), *Oryzopsis hymenoides* (ricegrass), and *Schismus barbatus*.

The 1-hectare surveys in Joshua tree woodland transects indicated that trees taller than 1.4 meters had a mean height of 4.7 meters (n=245). The mean height ranged from 2.4 meters in Transect 37 to 7.3 meters in Transect 31. Dbh averaged 24.2cm with ranges consistent with heights, the lowest (10.0cm n=1) recorded in Transect 37 and the highest (44.4cm n=5) in Transect 31. Trees shorter than 1.4 meters had a mean height of 0.5 meter (n=45). These measurements included individuals which were relatively young (several years old) and more mature trees (>10 years old). One hectare surveys in Transects 7 and 30 had the largest number of trees counted (n=58 and n=48 respectively) with Transects 37 and 38 having the lowest numbers of Joshua trees (n=4 and n=7 respectively).

Creosote Bush Scrub. Vegetation data for creosote bush scrub transects are presented in Appendix A-2. In creosote bush scrub habitats, some directional trends are evident. Mean total overlay cover was highest in Transects 34 (169.9%) and 21 (160.6%) in the west-central portion of the study area. Mean total overlay cover was lowest in the eastern areas of the base in Transects 47 (41.9%) and 18 (44.4%). The mean total overlay cover for creosote bush habitats basewide was 115.9 percent. Mean projective cover was higher in the west-central region of the base in Transects 27 (73.5%) and 34 (71.1%) compared to the eastern region in Transects 50 (26.2%) and 47 (27.5%). The western part of the study area had the highest mean percent rock compositions at Transect 29 (28.6%) and Transect 23 (25.7) with the eastern part of the study area (Transects 3, 6, and 18) having the lowest mean rock compositions.

Mean species richness was higher in the west than in the east. Transects 13, 28, 22, and 21 in the west had the highest mean species richness values of 46.0, 42.5, 42.0, and 41.0, respectively. Transects 6, 3, 18, and 47 on the east side of Rogers Dry Lake had the lowest mean species richness at 20.5, 21.5, 24.5, and 24.5, respectively. The mean proportion of native species ranged from 83.0 percent in Transect 6 to 91.0 percent in Transect 49.

The range of mean heights of dominant shrubs in creosote bush scrub were:

- *Acamptopappas sphaerocephalus* (goldenhead), 41.7cm in Transect 23 to 64.0cm in Transect 21;
- *Ambrosia dumosa* (burro-weed), 37.7cm in Transect 49 to 63.7cm in Transects 27 and 32;
- *Eurotia lanata* (Winterfat), 47.3cm in Transect 23 to 82.7cm in Transect 13;
- *Eriogonum fasciculatum* var. *polifolium* (California buckwheat), 46.7cm in Transect 23 to 63.0cm in Transect 33;
- *Ephedra nevadensis* (Mormon tea), 53.7cm in Transect 49 to 80.3cm in Transect 33;
- *Haplopappas cooperi*, 31.3cm in Transect 13 to 53.3cm in Transect 21;
- *Hymenoclea salsola*, 58.7cm in Transect 49 to 99.0cm in Transect 27;
- *Lycium andersonii* (box-thorn), 37.0cm in Transect 49 to 70.0cm in Transect 23;
- *Tetradymia stenolepis*, 55.7cm in Transect 23 to 91.7cm in Transect 39; and
- *Larrea tridentata* (Creosote bush), 105.0cm in Transect 3 to 268.3cm in Transect 13.

Other common species associates found in creosote bush scrub include *Amsinckia tessellata* (fiddleneck), *Bromus rubens* (foxtail chess), *B. tectorum* (cheatgrass), *B. trinii* (bromegrass), *Chorizanthe brevicornu* var. *brevicornu*, *Erodium cicutarium* (filaree), *Festuca microstachys* (fescue), *Filago depressa* (filago), *Gilia minor* (gilia), *Lasthenia glabrata var. californica* (goldfields), *Pectocarya penicillata*, *Phacelia tanacetifolia*, *Schismus barbatus*, and *Streptanthella longirostris*.

Halophytic Phase Saltbush Scrub. Vegetation data for halophytic phase saltbush scrub transects are presented in Appendix A-3. Mean total overlay cover in halophytic phase saltbush scrub habitats ranged from 39.9 percent in Transect 48 to 100.7 percent in Transect 51. Mean projective cover varied from 24.2 percent in Transect 48 to 60.3 percent in Transect 54. The mean percent cover values for the most common saltbush species, *Atriplex spinifera* and *A. lentiformis*, were 4.7 percent and 3.8 percent, respectively. Mean species richness was lowest in

Transect 41 (16.0%) and highest in Transect 42 (36.5%). The mean total percent of native species in halophytic phase saltbush scrub ranged from 73.6 percent in Transect 51 to 87.1 percent in Transect 24. Mean heights of dominants shrubs were:

- *Atriplex canescens*, 84.7cm in Transect 59 to 132.7cm in Transect 52;
- *Atriplex confertifolia*, 52.3cm in Transect 43 to 85.0cm in Transect 48;
- *Atriplex lentiformis*, 47.0cm in Transect 48 to 108.3cm in Transect 59;
- *Atriplex spinifera*, 55.3cm in Transect 24 to 84.3cm in Transect 57;
- *Lepidium fremontii* (peppergrass), 44.0cm in Transect 43 to 68.0cm in Transect 55; and
- *Suaeda moquinii* (seep-weed), 45.0cm in Transect 55 to 78.7cm in Transect 24.

Other plant species commonly associated with halophytic phase saltbush scrub included *Amsinckia tessellata* (fiddleneck), *Atriplex phyllostegia* (arrowscale), *Bromus rubens* (foxtail chess, *Bromus tectorum* (cheatgrass), *Distichlis spicata* (saltgrass), *Erodeum cicutarium* (filaree), *Festuca microstachys* (fescue), *Hordeum leporinum* (barley), *Lasthenia glabrata var. californica* (goldfields), *Lepidium flavum* var. *flavum* (peppergrass), *Malacothrix glabrata* (desert dandelion), *Schismus barbatus*, *Sporobolus airoides* (dropseed), *Ephedra nevadensis* (Mormon tea), and *Yucca brevifolia* (Joshua tree).

Arid Phase Saltbush Scrub. Vegetation data for arid saltbush scrub transects are presented in Appendix A-4. Mean total overlay cover in arid phase saltbush scrub transects varied from 35.7 percent in Transect 44 to 119.4 percent in Transect 40. Mean projective cover was lowest at 24.9 percent in Transect 44 and highest at 63.7 percent in Transect 8. The dominant shrub for this habitat, *Atriplex polycarpa*, was present in all transects with a mean percent cover of 6.7 percent. Mean species richness ranged from 23.5 in Transects 14, 15, and 40 to a 53.5 in Transect 12. The mean proportion of native species in arid phase saltbush scrub habitats varied from 79.4 percent in Transect 10 to 92.0 in Transect 2.

Mean heights of dominant shrub species were:

- *Acamptopappas sphaerocephalus* (Goldenhead), 39.0cm in Transect 12 to 58.0cm in Transect 1;
- *Ambrosia dumosa* (burro-weed), 36.3cm in Transect 15 to 59.7cm in Transect 1;
- *Atriplex polycarpa*, 59.0cm in Transect 10 to 111.3cm in Transect 8;

- *Grayia spinosa* (hopsage), 66.3cm in Transect 8a to 88.7cm in Transect 8b;

- *Haplopappus cooperi*, 25.7cm in Transect 8 to 54.7cm in Transect 1;

- *Hymenoclea salsola*, 52.0cm in Transect 44 to 78.3cm in Transect 8; and

- *Lycium andersonii* (box-thorn), 41.0cm in Transect 14a to 74.0cm in Transect 14b.

Other plant species commonly associated with halophytic phase saltbush scrub habitats were *Amsinckia tessellata* (fiddleneck), *Bromus rubens* (foxtail chess), *B. Tectorum* (cheatgrass), *Chorizanthe brevicornu var. brevicornu*, *Erodium cicutarium* (filaree), *Filago depressa (*filago), *Gilia minor* (gilia), *Lasthenia glabrata var. californica* (goldfields), *Malacothrix glabrata* (desert dandelion), *Schismus barbatus*, *Strptanthella longirostris*, *Eurotia lanata* (winterfat), and *Tetradymia stenolepsis*.

Mesquite Woodlands. Vegetation data for the three mesquite woodland transects are presented in Appendix A-5. The mean total overlay cover in mesquite woodlands ranged from 82.1 percent in Transect 56 to 121.1 percent in Transect 60. Mean projective cover varied from 46.5 percent in Transect 56 to 70.5 percent in Transect 53. *Prosopis glandulosa* var. *torreyana* (Mesquite) was the dominant species with a mean percent cover of 16.1 percent. Mean species richness values ranged from 21.5 species in Transect 56 to 25.5 in Transect 60. Transect 56 had the lowest proportion of native species (67.4%) and Transect 60 had the highest (76.4%).

The mean heights of dominant shrub species were:

- *Artemisia tridentata* ssp. *parishii* (basin sagebrush), 127.3cm in Transect 56 to 211.0cm in Transect 60;

- *Atriplex confertifolia*, 64.7cm in Transect 53 to 80.0cm in Transect 56;

- *Atriplex lentiformis*, 78.7cm in Transect 60 to 110.7cm in Transect 53;

- *Atriplex spinifera*, 84.0cm in Transect 60a to 93.3cm in Transect 60b; and

- *Suaeda moquinii* (seep-weed), 76.0cm in Transect 53a to 82.0cm in Transect 53b.

Other plant species commonly associated with mesquite woodlands included *Amsinckia tessellata* (fiddleneck), *Atriplex phyllostegia* (arrowscale), *Bromus rubens* (foxtail chess), *B. Tectorum* (cheatgrass), *B. Trinii*, *Erodium cicutarium* (filaree), *Hordeum leporinum* (barley), *Lasthenia glabrata var. californica* (goldfields), *Nitrophila occidentalis*, and *Schismus barbatus*.

The 1-hectare surveys in mesquite woodlands indicated that trees taller than 1.4 meters had a mean height of 3.4 meters (n=98). The mean height ranged from a low of 2.9 meters in Transect 56 to a high of 4.1 meters in Transects 53 and 60. Only two specimens of mesquite were shorter than 1.4 meters. One individual in Transect 60 measured 0.7 meter and one in Transect 53 measured 1.0 meter in height. Transect 56 had the most trees (n=56) and Transect 60 had the least (n=16).

Wildlife Surveys

Field surveys for wildlife were conducted between March 1 and May 1, 1993. Data tables for wildlife are presented in Appendix B.

Herpetofauna. Herpetofauna transect data are presented in Appendix B-4. Thirteen reptile species were detected during herpetofauna surveys (Appendix C). The desert spiny lizard (*Sceloporus magister*), side-blotched lizard (*Uta stansburiana*), western whiptail (*Cnemidophorus tigris*), and desert night lizard (*Xantusia vigilis*) were observed at least once in every habitat. The leopard lizard (*Gambelia wislizenii*) was observed in all habitats except Joshua tree woodlands and the desert horned lizard (*Phrynosoma platyrhinos*) was observed in all habitats except mesquite woodlands. Other lizard species were encountered less frequently with the Mojave fringe-toed lizard (*Uma scoparia*) observed on only 7 percent of the transects within creosote bush scrub or halophytic phase saltbush scrub habitats. The zebra-tailed lizard (*Callisaurus draconoides*) and desert iguana (*Diposaurus dorsalis*) were each detected on only one transect in a creosote bush scrub habitat. The desert tortoise (*Gopherus agassizii*) was observed in Joshua tree woodland, creosote bush scrub, and halophytic phase saltbush scrub habitats on 22 percent of transects during herpetofauna surveys. The coachwhip (*Masticophis flagellum*) was the most commonly encountered snake, found five times during the surveys in creosote bush scrub and halophytic phase saltbush scrub habitats. The gopher snake (*Pituophis melanoleucus*) and Mojave rattlesnake (*Crotalus scutalatus*) were each observed twice.

Species richness ranged from one in Transect 31 in Joshua tree woodland to six in Transect 49 in creosote bush scrub. Mean species richness by habitat was:

- 2.92 in Joshua tree woodland;
- 3.32 in creosote bush scrub;
- 3.15 in halophytic phase saltbush scrub;
- 2.90 in arid phase saltbush scrub; and
- 3.00 in mesquite woodland.

Relative abundance (individuals per 3 HA) ranged from three in Transect 5 in Joshua tree woodland to 17 in Transect 45 in halophytic phase saltbush scrub. Mean relative abundance by habitat was:

- 8.08 (individuals/3 HA) in Joshua tree woodland;
- 7.77 (individuals/3 HA) in creosote bush scrub;
- 9.62 (individuals/3 HA) in halophytic phase saltbush scrub;
- 8.80 (individuals/3 HA) in arid phase saltbush scrub; and
- 11.00 (individuals/3 HA) in mesquite woodland.

Mojave fringe-toed lizards were often found associated with sandy washes. The zebra-tailed lizard (*Callisaurus draconoides*) and desert iguana (*Diposaurus dorsalis*) were each detected on only one transect in a creosote bush scrub habitat, but both were encountered incidental to other surveys, along with the sidewinder (*Crotalus cerastes*) and chuckwalla (*Sauromalus obesus*) which was detected only by scat.

Birds. Avian transect data are presented in Appendix B-3. Bird surveys detected a total of 60 avian species with many other species observed as flyovers. Several species were observed in all areas of the base and in all habitats: sage sparrows (*Amphispiza belli*), white-crowned sparrows (*Zonotrichia leucophrys*), Brewer's sparrows (*Spizella breweri*), western meadowlarks (*Sturnella neglecta*), loggerhead shrikes (*Lanius ludovicianus*), ash-throated flycatchers (*Myiarchus cinerascens*), horned larks (*Eremophila alpestris*), and common ravens (*Corvus corax*). Other common species included mourning doves (*Zenaida macroura*), California quail (*Callipepla californicus*), ladder-backed woodpeckers (*Picoides scalaris*), western kingbirds (*Tyrannus verticalus*), cactus wrens (*Campylorhyncus brunneicapillus*), sage thrashers (*Oreoscoptes montanus*), LeConte's thrashers (*Toxostoma lecontei*), and northern mockingbirds (*Mimus polyglottos*).

Common raptors observed during these surveys were the red-tailed hawk (*Buteo jamaicensis*) seen on five transects across all habitats except mesquite woodland, American kestrel (*Falco sparverius*), northern harrier (*Circus cyaneus*), Cooper's hawk (*Accipiter cooperii*), burrowing owl (*Athene cunicularia*), and great horned owl (*Bubo virginianus*).

Species richness ranged from two in three transects in halophytic and arid phase saltbush scrub to 18 in Transects 59 (halophytic phase saltbush scrub) and 56 (mesquite woodland). Mean species richness by habitat was:

- 9.58 in Joshua tree woodland;
- 6.36 in creosote bush scrub;
- 6.77 in halophytic phase saltbush scrub;
- 4.60 in arid phase saltbush scrub; and
- 13.00 in mesquite woodland.

Relative abundance (individuals per 40 HA) ranged from 80 in Transect 24 in halophytic phase saltbush scrub to 994 in Transect 60 in mesquite woodland. Mean relative abundance by habitat was:

- 474.75 (individuals/40 HA) in Joshua tree woodland;
- 329.18 (individuals/40 HA) in creosote bush scrub;
- 272.00 (individuals/40 HA) in halophytic phase saltbush scrub;
- 310.70 (individuals/40 HA) in arid phase saltbush scrub; and
- 833.67 (individuals/40 HA) in mesquite woodland.

Several bird species were observed incidental to other surveys within the study area that were not recorded during these surveys, including the ferruginous hawk (*Buteo regalis*), golden eagle (*Aquila chrysaetos*), prairie falcon (*Falco mexicanus*), short-eared owl (*Asio flammeus*), and long-eared owl (*A. otus*).

Large Mammals. Large mammal transect data are presented in Appendix B-1. Ten large mammal species were detected during these surveys with black-tailed jackrabbits (*Lepus californicus*) the only species detected every survey day in every transect. This species was especially abundant along Transect 7 in Joshua tree woodland and Transect 8 in arid phase saltbush scrub in the extreme northwest corner of the base. Evidence of desert cottontails (*Sylvilagus audubonii*) occurred on 78 percent of the transects surveyed and were abundant in mesquite habitats. Two squirrel species were observed or detected during these surveys. The antelope ground squirrel is by far the most abundant sciurid on the base, occurring in all habitats with the possible exception of mesquite woodlands. The California ground squirrel (*Citellus beecheyi*) was detected on large mammal transects only on the west side of the base in arid phase saltbush scrub habitats near the housing area and in the area northeast of Rosamond Dry Lake in creosote bush scrub habitats. Carnivores detected include the desert kit fox (*Vulpes macrotis*), detected on 65 percent of the transects and the coyote (*Canis latrans*), detected on 48 percent of the transects. The American badger (*Taxidea*

taxus) was detected on 15 percent of the transects and the bobcat (*Felis rufus*) was detected on 5 percent of the transects.

Species richness ranged from one in Transect 11 in arid phase saltbush scrub to five in transects across locations and habitats within the study area. Mean species richness by habitat was:

- 3.17 in Joshua tree woodland;
- 3.59 in creosote bush scrub;
- 3.69 in halophytic phase saltbush scrub;
- 3.10 in arid phase saltbush scrub; and
- 3.67 in mesquite woodland.

Relative abundance (individuals per 3 hectares) ranged from six in Transects 35 (creosote bush scrub) and 11 (arid phase saltbush scrub) to 39 in Transect 12 in arid phase saltbush scrub. Mean relative abundance by habitat was:

- 14.67 (individuals/3 HA) in Joshua tree woodland;
- 14.77 (individuals/3 HA) in creosote bush scrub;
- 18.08 (individuals/3 HA) in halophytic phase saltbush scrub;
- 17.10 (individuals/3 HA) in arid phase saltbush scrub; and
- 22.00 (individuals/3 HA) in mesquite woodland.

The gray fox (*Urocyon cinereoargenteus*) and Mohave ground squirrel (*Spermophilus mohavensis*) were not positively identified during large mammal transect surveys, but their presence was confirmed incidental to other surveys.

Small Mammals. Small mammal trapping results are presented in Appendix B-2. Eleven species of nocturnal small mammals were captured during nocturnal trapping surveys. The Merriam kangaroo rat (*Dipodomys merriami*) and deer mouse (*Peromyscus maniculatus*) were the most commonly encountered species, captured in every Transect in every habitat. Eight species were found at least once in every habitat studied. These included three species of kangaroo rats (*Dipodomys* spp.), two species of pocket mice (*Perognathus* spp.), deer mice, grasshopper mice (*Onychomys torridus*), and desert woodrats (*Neotoma lepida*). The desert kangaroo rat (*Dipodomys deserti*) was captured only in Joshua tree woodland and halophytic phase saltbush scrub habitats. Most of these captures (83%) were on the east side of Rogers Dry Lake. Of the three halophytic phase saltbush scrub surveys areas in which desert kangaroo rats were found, two were in the southwest and one in the east. The least commonly encountered

rodents on the base were the western harvest mouse (*Reithrodontomys megalotis*) and California vole (*Microtus californicus*). Western harvest mice were captured on five transects (8%) in mesquite woodlands and both arid phase and halophytic phase saltbush scrub habitats, all on the west side of Rogers Dry Lake. Only two California voles were captured during these surveys, both in the southwest portion of the base at Transect 53 in mesquite woodland and Transect 57, in halophytic phase saltbush scrub adjacent to Piute Ponds.

Species richness ranged from four in three transects to eight, also in three transects. Mean species richness by habitat was:

- 6.33 in Joshua tree woodland;
- 5.64 in creosote bush scrub;
- 6.54 in halophytic phase saltbush scrub;
- 5.70 in arid phase saltbush scrub; and
- 6.00 in mesquite woodland.

Small mammal relative abundance in creosote bush scrub was slightly higher in the southeast portion of the study area and in the Rosamond Hills than in the northeast. In arid phase saltbush scrub habitats, small mammal relative abundance was slightly lower in the northeastern portion of the study area than elsewhere. Relative abundance (individuals per 1 HA) ranged from 45 in Transect 11 in arid phase saltbush scrub to 168 in Transect 30 in Joshua tree woodland. Mean relative abundance by habitat was:

- 124.08 (individuals/1 HA) in Joshua tree woodland;
- 98.50 (individuals/1 HA) in creosote bush scrub;
- 101.15 (individuals/1 HA) in halophytic phase saltbush scrub;
- 96.40 (individuals/1 HA) in arid phase saltbush scrub; and
- 139.00 (individuals/1 HA) in mesquite woodland.

In addition to the little pocket mouse (*Perognathus longimembris*) captured throughout the base, a second pocket mouse (*Perognathus inornatus*) was captured in many areas of the base.

Habitat Quality Analysis

Appendix C contains data tables and charts with the results of data calculations for HQA. For all habitat types, theoretical primes were developed from the highest value for each criterion in each habitat. Appendix C also

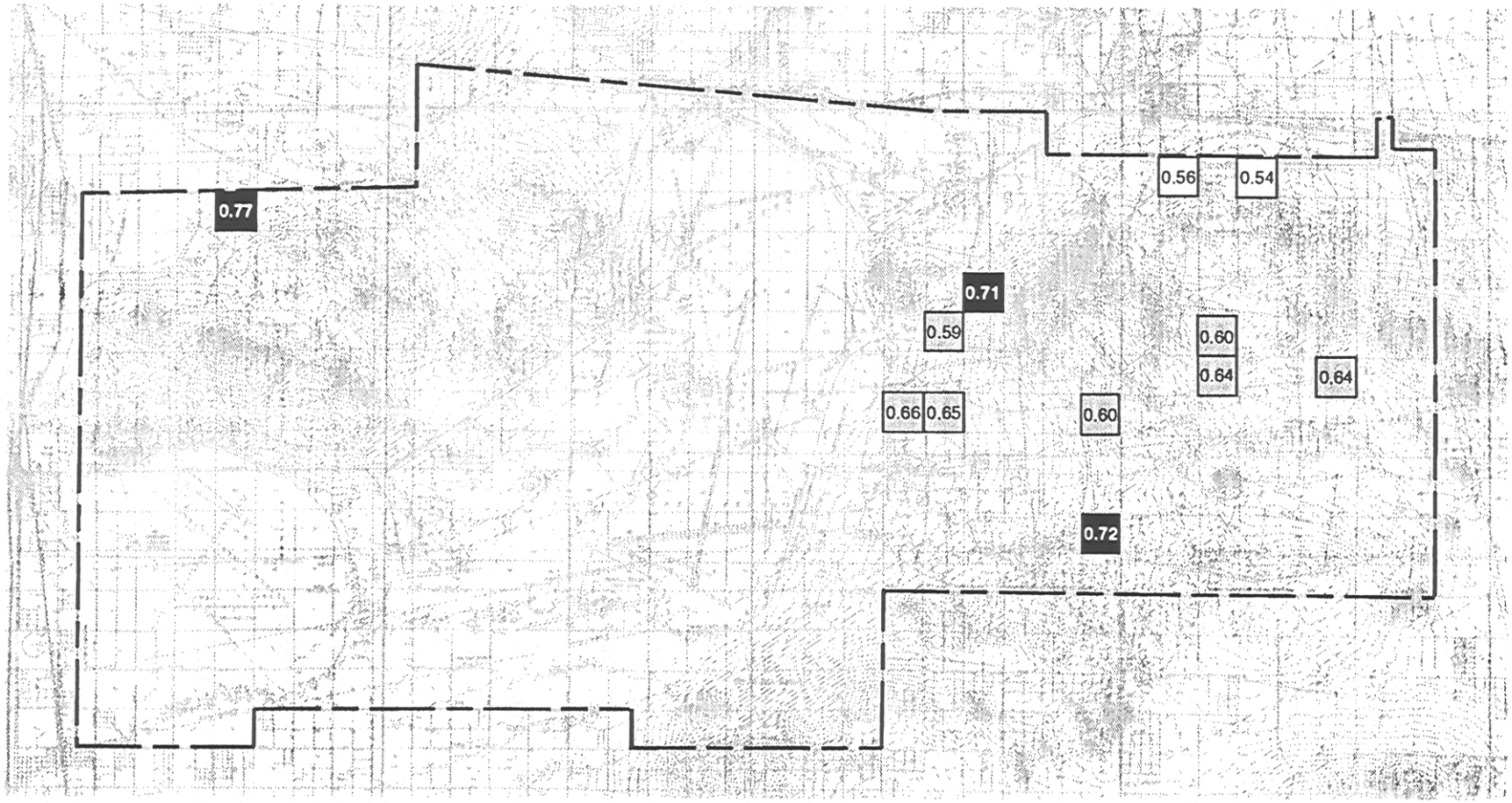
contains bar charts depicting the percentage that each criteria group contributed to the final HQA index in each transect.

Joshua Tree Woodland. HQA results for Joshua tree woodlands are presented in Appendix C-1. The mean HQA index for Joshua tree woodland was 0.64 (n=12) with a standard deviation of 0.07. Transect 7, the only transect in Joshua tree woodland on the west side of Rogers Dry Lake, yielded the highest HQA index (0.77). This transect had the highest values for 11 of the 14 HQA criteria, including plant species richness and all vegetation structure criteria. On the east side of Rogers Dry Lake, HQA indices were highest in Transect 46 (0.72) and Transect 17 (0.71). Transect 46 had the highest values for large mammal and avian species richness and relative abundance. Transect 17 had the highest values for species of special concern, herpetofauna relative abundance, and proportion of native plant species. Transects 4 and 5 in the northeast portion of the base had the highest values for mammal species richness but low values for most other criteria, yielding the lowest HQA indices (0.56 and 0.54, respectively). No directional trends are apparent in HQA indices for Joshua tree woodland (Figure 7).

Creosote Bush Scrub. HQA results for creosote bush scrub transects are presented in Appendix C-2. The mean HQA index for this habitat was 0.60 (n=22) with a standard deviation of 0.07. Transects 13 and 16 in the northwestern part of the base had the highest HQA indices (0.73) for this habitat. These transects had the highest values for only two criteria but other values were consistently high.

The lowest HQA index for creosote bush scrub was in Transect 18 on the east side of the study area (0.44). HQA indices appear to increase in creosote bush scrub habitats from east to west (Figure 8).

Halophytic Phase Saltbush Scrub. HQA results for halophytic phase saltbush scrub transects are presented in Appendix C-4. The mean HQA index for halophytic phase saltbush scrub was 0.61 (n=13) with a standard deviation of 0.06. Transect 42 on the west side of Rogers Dry Lake yielded the highest HQA index (0.77) for this habitat. This section had the highest value for species of special concern, and plant, small mammal, and herpetofauna species richness. Transect 59 in the south-central part of the study area had the second highest HQA index (0.67) with high values for avian species richness and relative abundance and small mammal relative abundance. The lowest HQA indices for this habitat were in Transect 41 (0.53) just east of Rogers Dry Lake and Transect 55 (0.55) on the southeast edge of Rosamond Dry Lake. No directional trends were apparent in halophytic phase saltbush scrub habitats (Figure 9).

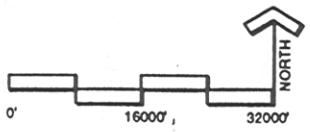


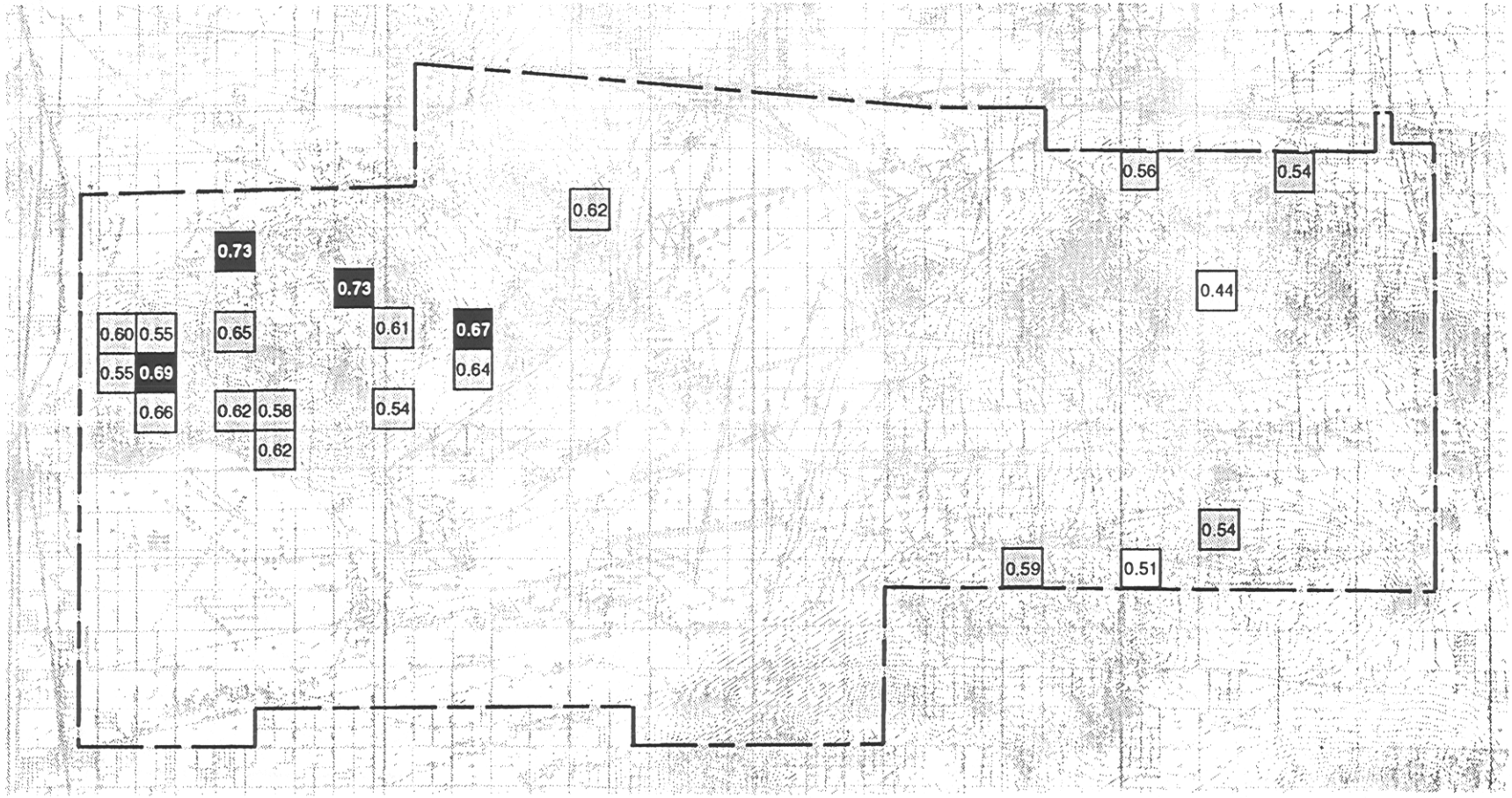
HQA INDEX VALUE

- ≤ 0.57
- 0.57 - 0.71
- ≥ 0.71

MEAN = 0.64
STANDARD DEVIATION = 0.07

FIGURE 7
HQA INDICES JOSHUA TREE WOODLAND, EDWARDS AFB





HQA INDEX VALUE

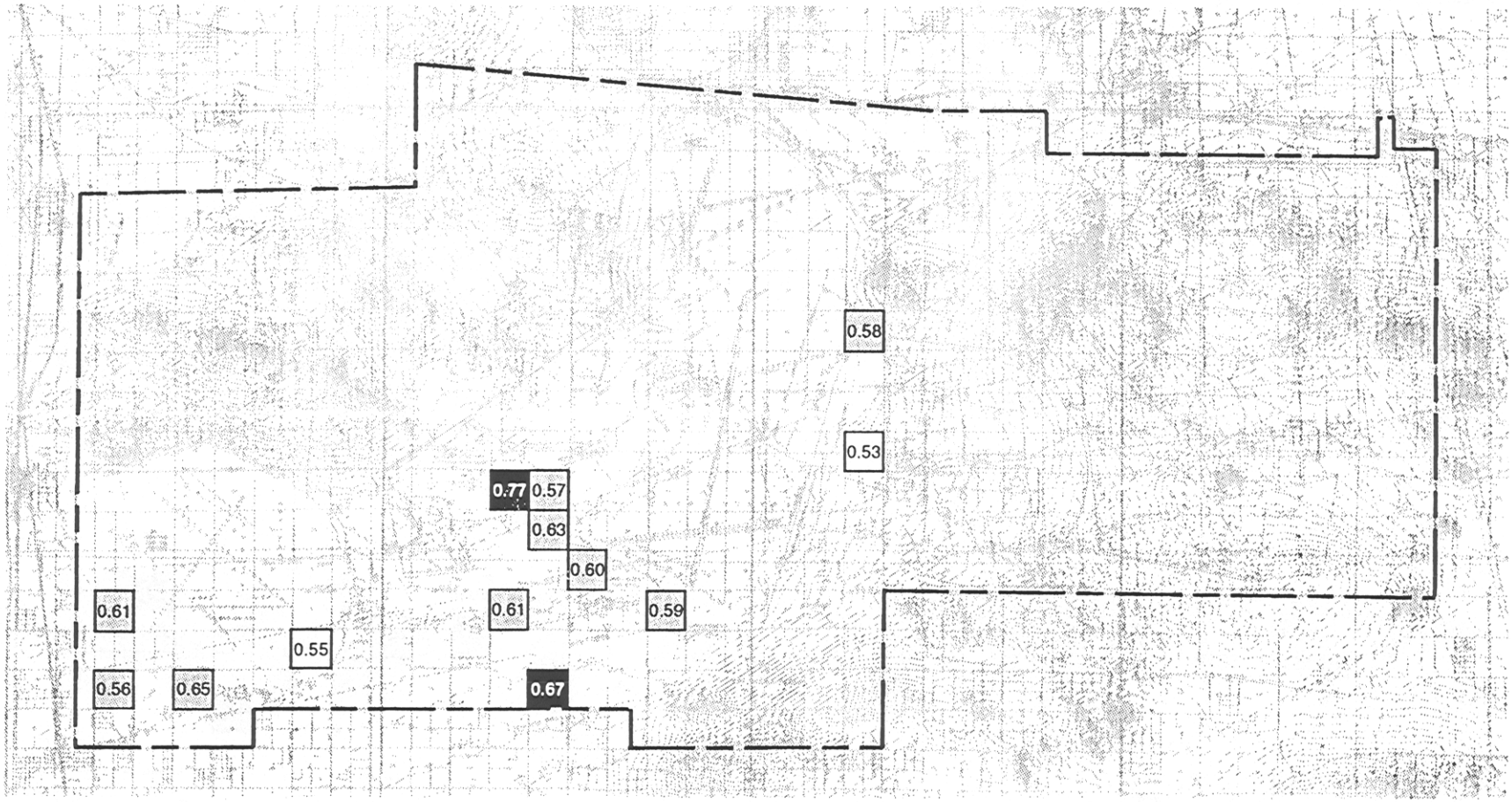
- ≤ 0.53
- 0.53 - 0.67
- ≥ 0.67

MEAN = 0.60
STANDARD DEVIATION = 0.07

FIGURE 3
HQA INDICES
CREOSOTE BUSH SCRUB
EDWARDS AFB

0' 16000' 32000'
NORTH

B14_08.MAC2/13/97

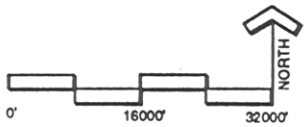


HQA INDEX VALUE

- ≤ 0.55
- 0.55 - 0.67
- ≥ 0.67

MEAN = 0.61
STANDARD DEVIATION = 0.06

FIGURE 9
HQA INDICES
HALOPHYTIC SALTBUSH SCRUB
EDWARDS AFB



E164_09.MAC 3/13/97

Arid Phase Saltbush Scrub. HQA results for arid phase saltbush scrub transects are presented in Appendix C-4.The mean HQA index for arid phase saltbush scrub was 0.68 (n=10) with a standard deviation of 0.10. Transect 8 along the northwestern boundary of the base had the highest HQA index (0.84) for this habitat. This transect had the highest value for species of special concern, large mammal species richness, and terrestrial surface percent cover, with relatively high values for other criteria. The lowest HQA index was in Transect 11 (0.56), northeast of Rogers Dry Lake. HQA indices for arid phase saltbush scrub generally increased from east to west across the study area (Figure 10).

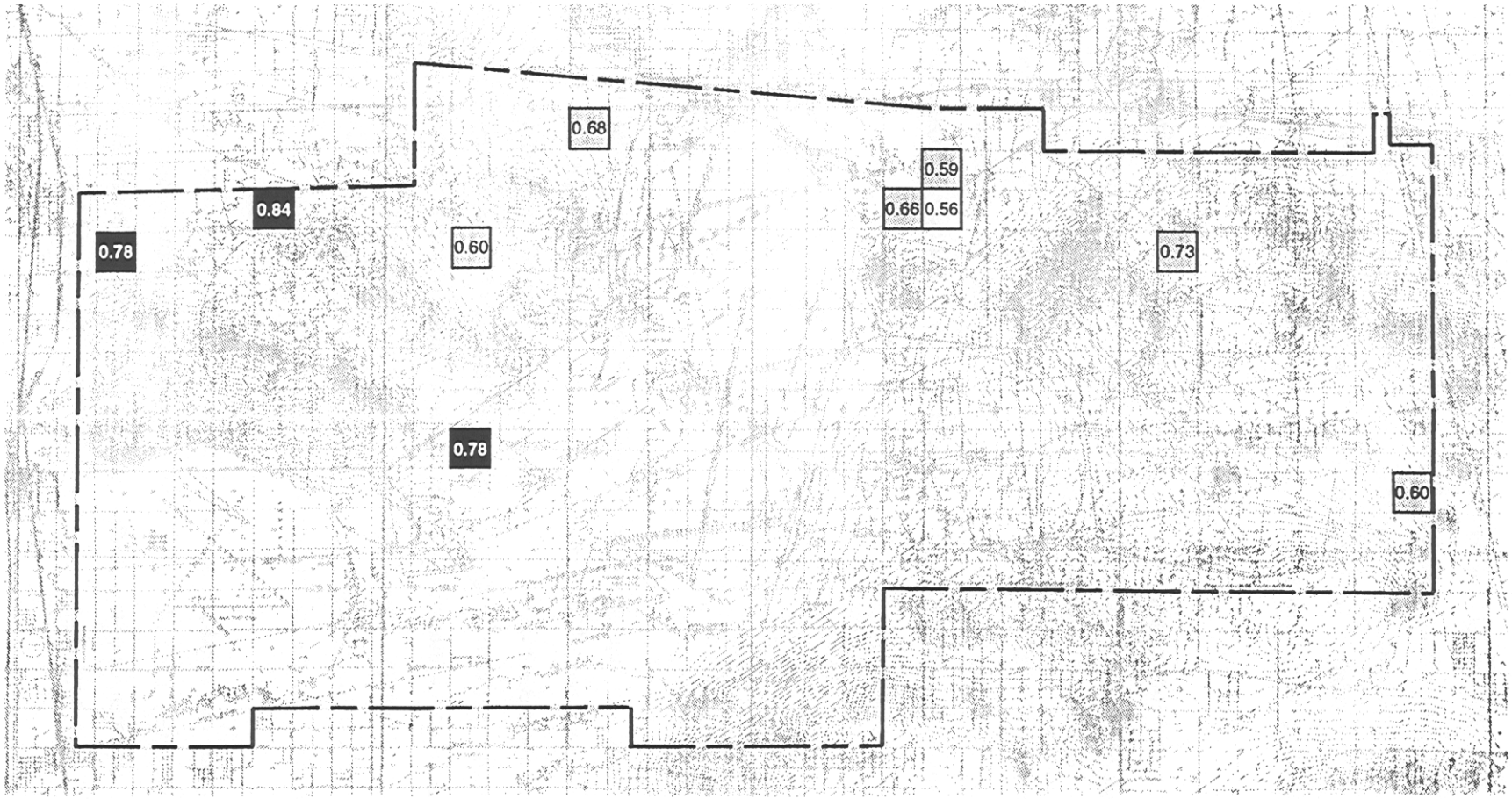
Mesquite Woodland. HQA results for mesquite woodland transects are presented in Appendix C-5. The mean HQA index for mesquite woodlands was 0.77 (n=3) with a standard deviation of 0.07. Transect 56 had the highest HQA index (0.84) for this habitat with the highest values for species of special concern; large mammal, bird, and herpetofauna species richness; and herpetofauna relative abundance. With the exception of vegetation structure criteria, other values for this section were relatively high. Although it had the highest values for terrestrial surface and shrub cover and large mammal relative abundance, Transect 53 had the lowest overall HQA index for this habitat (Figure 11).

DISCUSSION

Vegetation Surveys

Factors that may affect the results of vegetation surveys include observer bias, and variations in the amount of human-related disturbance in the transect. This study did not attempt to identify all plant species in the study area. The nature of random surveys, consistent methodology, and period in which surveys were conducted yield results which provide a basis for comparisons within habitats. Repetition of these surveys in later years and slightly different survey periods could ultimately yield the clearest picture of species composition and population trends in the study area. Results of basewide vegetation surveys provide baseline data for each of the habitats against which future surveys can be compared. Differences of several weeks in survey times between transects may have resulted in differences in the types and numbers of plant species detected.

Joshua Tree Woodland. Joshua tree woodland habitats at Edwards AFB are distributed on gentle hills and valley floors of the upper bajadas and sandy areas where moisture from hillside runoff and water retention by clay subsoils in saltbush scrub provides a better chance of tree seedling survival. Much of the distribution is disjunct in terms of elevation and edaphic conditions. Most Joshua tree woodlands are found east of Rogers Dry Lake with smaller

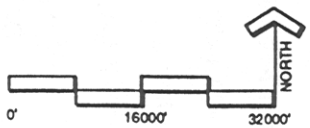


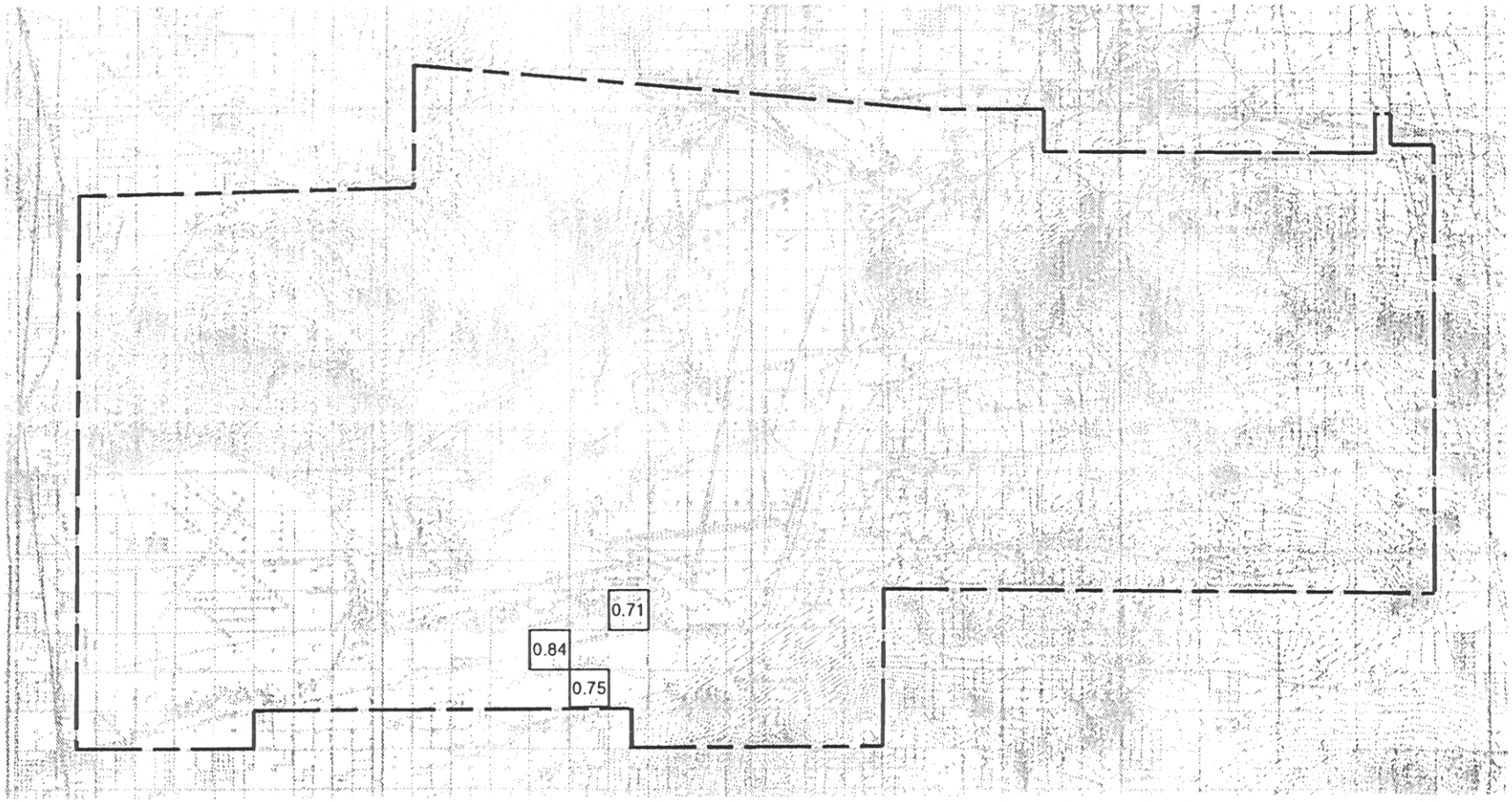
HQA INDEX VALUE

- ≤ 0.58
- 0.58 - 0.78
- ≥ 0.78

MEAN = 0.68
STANDARD DEVIATION = 0.1

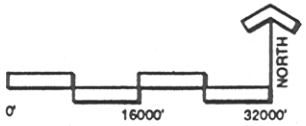
FIGURE 10
HQA INDICES
ARID PHASE SALTBUSH SCRUB
EDWARDS AFB





MEAN = 0.77
STANDARD DEVIATION = 0.07

FIGURE 11
HQA INDICES
MESQUITE WOODLAND
EDWARDS AFB



E164_11.MAC/3/3/97

patches occurring in the northwest portion of the study area. Results of these surveys indicated that Joshua tree woodlands on the base are diverse in the types and numbers of plant species. Joshua trees are considered to be important botanical features in Mojave Desert ecosystems because of their importance for wildlife, and because of their increasing scarceness as a result of habitat destruction.

Creosote Bush Scrub. Creosote bush scrub habitats on the base are distributed on slopes, hills, and well-drained flats. Creosote bush scrub occurs on similar soil types and under similar moisture conditions to those favorable for Joshua tree woodlands and creosote bush is often the principal understory species in Joshua tree woodlands. Creosote bush scrub inhabits hillsides and coarser-textured, well-drained soils above the arid phase saltbush scrub. This habitat is not tolerant of fine-textured, poorly drained, alkaline soils near the dry lake beds (Charlton, personal communication, 1992). The directional trend in creosote bush scrub habitats of increasing habitat quality from east to west may be attributable in part to the more rocky substrates located on the west side of the base creating more niches for plant growth. It may also be due, in part, to the time of year which field sampling took place (early April to early May on the east side of Rogers Dry Lake and mid May to mid June on the west side of Rogers Dry Lake). Later seasonal sampling dates allow more time for plant growth to occur for mid spring and early summer species, especially annuals.

Halophytic Phase Saltbush Scrub. Halophytic phase saltbush scrub habitats dominate alkaline, fine-textured soils, often with a layer of hardpan below. Halophytic phase saltbush scrub is the dominant habitat in the southwest portion of the study area and is found in narrow bands around the dry lake beds and claypans and dune complex areas of the base. Much of the halophytic phase saltbush scrub in the southwest portion of the base has been heavily disturbed by past agricultural activity and more recently by illegal dumping.

Arid Phase Saltbush Scrub. Arid phase saltbush scrub habitats occupy arid soils with a moderately high pH value, but may still be less alkaline than some halophytic phase saltbush scrub found on flatter terrain. Arid phase saltbush scrub is widespread in elevations above halophytic phase saltbush scrub habitats. It is found in intermediate soil types between finer soils found in halophytic phase saltbush and coarser-textured, well-drained soils characteristic of creosote bush scrub and Joshua tree woodland habitats. The high density of allscale plants in this habitat decreases the space available to other annual and perennial plant species. Arid phase saltbush scrub, the dominant habitat throughout most of the unpaved portions of the Main Base and South Base areas, is prevalent in much of the northwest portion of the study area and is found in smaller areas east of Rogers Dry Lake.

Mesquite Woodlands. Compared to the number of transects in the zonal habitats, mesquite woodland surveys were limited because of the scarcity of this habitat at Edwards AFB. Mesquite woodland habitats are restricted to the more

mesic desert washes and drainages within halophytic phase saltbush scrub in the southwestern portion of the base where historic disturbances have led to relatively low proportions of native species in the understory. Mesquite cover in these areas varies greatly from small, dense stands to scattered individuals. The fact that mesquite woodlands are lowest in mean plant species richness and mean proportion of native species of the habitats surveyed, suggests that these habitats are disturbed. Most of the halophytic phase saltbush scrub and mesquite woodlands in this area have been heavily affected by past agricultural activities associated with the numerous historic homesteads in the area. Mesquite woodlands off the base have been virtually extirpated in the region.

Wildlife Surveys

Factors that may affect the results of wildlife surveys include observer bias; in the case of large mammals, the reliability of the relationship between relative abundance, species richness, and sign; and variations in the amount of human-related disturbance in the area. This study did not attempt to identify all wildlife species on the base and relative abundance data do not represent absolute densities. However, random selection of transects paired with consistent methodology and survey periods yields results which provide a basis for comparisons within habitats. Repetition of these surveys in subsequent years and slightly different periods could ultimately yield the clearest picture of the wildlife communities and population trends in the study area.

Herpetofauna. Herpetofauna species other than lizards are infrequently detected by the methodologies used for these surveys. More comprehensive surveys that could be performed utilizing pit-fall traps and drift fences are labor-intensive, particularly for a large scale effort such as this. The methodology employed in these surveys was consistent and yields data suitable for comparisons between habitats in the study area. Species richness varied substantially among the habitats, but mean relative abundance was consistent among habitats, although slightly higher in mesquite woodlands. Excluding the one Joshua tree woodland transect on the west side of Rogers Dry Lake, herpetofauna relative abundance increased slightly from east to west.

Birds. Although authorities agree that a minimum of six to eight visits per transect are required to detect most resident avifauna (Verner 1985), current surveys do yield data suitable for comparisons within habitats because all transects were censused using the same methodology.

Avian species richness and relative abundance were substantially higher in the mesquite woodlands than in other habitats. Mesic habitats such as these are typically productive for avian species within desert climates. These habitats create an "oasis effect" supporting not only species depending exclusively on the woodland but also attracting species from adjacent habitats to take advantage of additional cover and foraging opportunities. In other habitats on

the base, avian species richness shows a trend of increasing value roughly correlated with increasing vegetation structure with Joshua tree woodlands supporting the greatest diversity of birds and saltbush habitats supporting the lowest.

Large Mammals. Large mammal species richness was relatively consistent among habitats and locations on the base. As expected, large mammal relative abundance was highest in the mesquite woodlands. These habitats contribute cover and often provide a water source. Large mammal relative abundance tended to be slightly higher on the west side of Rogers Dry Lake. The data reveal that this may be due in part to an abundance of black-tailed jackrabbits in many of the Transects on the west side of the base. Many of the Transects with numerous black-tailed jackrabbits had also been substantially disturbed by sheep grazing.

Small Mammals. Small mammal trapping data may be influenced by the survey period. During the early phases of the survey, higher overall capture rates were observed, but few juveniles were trapped. Lower overall capture rates in April may have been the result of females remaining underground to rear young. Later in the season, the presence of juveniles may artificially increase abundance numbers.

Small mammal species richness was consistent across the base, averaging six species per trapping grid. Relative abundance was high in all habitats studied. Arid phase saltbush scrub, which had the lowest average relative abundance, supported an average of over 96 individuals per hectare.

Perhaps most significant in the small mammal studies was the frequent capture of a previously undescribed subspecies of pocket mouse. Large-scale nocturnal small mammal trapping studies had not previously been conducted on the base and other trapping studies in the immediate vicinity likely misidentified this animal as the sympatric *Perognathus longimembris* with which it shares many field identification characteristics. Several investigators have previously suggested the presence of *P. inornatus* in the Mojave Desert, but its distribution and relationships to subspecies from the San Joaquin Valley remain unresolved. Chromosomal analysis has revealed that the Mojave desert form possesses a karyotype (2n=52; FN=88) unknown in the subfamily Perognathinae. Multivariate analysis of morphometric data between these specimens and other members of the species group revealed significant variation from *P. longimembris* and *P. inornatus inornatus*, but not from *P.i. neglectus*. Based on its unique chromosome complement and known range, it is suggested that the Mojave Desert form found on Edwards AFB and vicinity represent a distinct subspecies of *P. inornatus*. A paper describing the phenotypic and genetic differences between this animal and other members of the genus is currently in preparation.

Habitat Quality Analysis

HQA was originally developed for the MWD Eastside Reservoir Project (1991). The procedure typically used to determine values is the Habitat Evaluation Procedure (HEP) developed by the USFWS. This approach quantifies biological value based on the ability of a habitat to support single indicator species. However, by focusing on the habitat requirements of one species, many biological features that contribute to the importance of a habitat with respect to the ecosystem it supports can be overlooked. Procedures for evaluating biological resource values of habitats in Southern California have not been based on the HEP due to a general concern that species-based models overlook important ecosystem components which affect habitat quality and the lack of adequate HEP models for the wildlife species in the region.

Because this study represents the first time that HQA has been performed at Edwards AFB, the indices developed provide a baseline against which future studies could be compared to monitor the health of the habitats and plant and wildlife populations on the base. Subsequent surveys should always be performed using identical methodologies. Vegetation surveys could be performed at various times throughout the growing season to detect both early and late flowering species. Performing one vegetation survey in the early part of the growing season and one in the late part of the growing season could substantially increase the knowledge of the vegetation of the study area. Comparisons of indices between habitat types are not valid because HQA indices are based on theoretical primes developed separately for each habitat type.

Additional vegetative structure may be responsible for increasing values for wildlife criteria, particularly for birds. For example, Transect 59 in halophytic phase saltbush scrub in the south-central part of the study area had the second highest HQA index (0.67) for that habitat with high values for avian species richness and relative abundance and small mammal relative abundance. Transect 59 is dominated by halophytic phase saltbush scrub, but also has mesquite woodland as a substantial azonal habitat.

Global Positioning System

Global Positioning Systems (GPS) technology provided a greater accuracy of locational data than previous methods. The nature of the topography within the study area (large expanses between notable relief areas) makes other methods such as triangulation with a compass less effective and less accurate. The majority of attempts to record data using GPS were successful, although several problems limited complete effectiveness.

Uncertainties encountered in the field were due to a lack of satellites necessary to acquire accurate readings and the inability to get accurate reading when topography limited the number of satellites that could be detected. Areas with deep washes and areas of relief such as Leuhman Ridge on the east side of the study area and the Rosamond Hills on the west side of the study area limited the number of satellites that could be accessed.

The base station used to collect data needed to correct field readings was located in the main base area of Edwards AFB. It was discovered during post-processing efforts that there were several occasions when the base station was not operating at the same time that data was being collected in the field. If possible, these readings were collected again. However, all data collected using the GPS are likely to be more accurate than those that would have been taken by surveyors using field maps.

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LIST OF ACRONYMS

AFB	Air Force Base
CDFG	California Department of Fish and Game
CERCLA	Comprehensive Environmental Restoration, Compensation and Liability Act
CNPS	California Native Plant Society
dbh	Diameter at breast height
EPA	U.S. Environmental Protection Agency
FFA	Federal Facilities Agreement
GPS	Global Positioning System
HEP	Habitat Evaluation Procedure
HQA	Habitat Quality Analysis
IRP	Installation Restoration Program
OU	Operable Unit
PRL	Potential Release Location
USFWS	U.S. Fish and Wildlife Service

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APPENDIX A

Vegetation Survey Results

A-1	Joshua Tree Woodland
A-2	Creosote Bush Scrub
A-3	Halophytic Phase Saltbush Scrub
A-4	Arid Phase Saltbush Scrub
A-5	Mesquite Woodland

Table A-1a
Vegetation Data Summary, Edwards AFB
Joshua Tree Woodland, Relative Abundance

Scientific Name	Common Name	Status*	Joshua Tree Woodland Transects																							
			4A	4B	5A	5B	7A	7B	17A	17B	25A	25B	26A	26B	30A	30B	31A	31B	36A	36B	37A	37B	38A	38B	46A	46B
Terrestrial Surface Layer																										
Amsinckia tessellata	Fiddleneck	N	C	VA	VA	A	VR	R	C	R	C	R	C	C	C	A	R		C	C		C	C	A	C	C
Astragalus didymocarpus	Locoweed	N									VR							VR					VR	VR		
Astragalus lentiginosus	Locoweed	N					VR	VR																		
Astragalus sp.	Locoweed	N																		VR						
Bromus rubens	Foxtail chess	I					VR	VR		VR	C	R	VR	VR	R	VR		VR	VR			VR	R	R		VR
Bromus tectorum	Cheatgrass	I	VR			VR	VR	VR			R		C			C							VR			VR
Calyptridium monandrum	N/A	N								VR						VR	VR									
Camissonia boothii desertorum	N/A	N							VR	VR																
Camissonia campestris	N/A	N	VR			VR	VR	VR	C	C	R	VR	VR	VR	VR	VR	VR	R				VR	VR	VR	VR	R
Camissonia sp.	N/A	N																	R		R				VR	
Chaenactis fremontii	N/A	N		VR		VR			R		VR	VR														
Chaenactis stevioides	N/A	N															C	C					VR		R	
Chaenactis xantiana	N/A	N																								
Coreopsis bigelovii	Tickseed	N				A	VR	VR	C	C			VR	VR		R	A	A	VR	VR	VR				C	C
Croton californicus mohavensis	Croton	N							VR	VR							VR									
Cryptantha dumetorum	N/A	N			VR		VR	R		VR					VR	VR	R	VR			R	R	VR		VR	R
Cryptantha micrantha micrantha	N/A	N			VR	VR	VR	VR	VR	R		VR	VR		VR	R	R	R			R	VR		VR	R	C
Cryptantha pterocarya	N/A	N			VR	VR	VR			VR		VR			VR	R	R	VR	R	R	R	R			VR	VR
Cryptantha sp.	N/A	N		VR		VR							R		VR											
Cymopterus deserticola	N/A	N															VR									
Delphinium parishii parshii	N/A	N									VR												VR			
Descurainia pinnata glabra	Tansy-mustard	N		VR	VR	VR	VR	VR		VR		VR	VR	C	R		R	VR	R		R	VR	R	R	VR	R
Eremalche exilis	N/A	N															VR	R								
Eriastrum densifolium	N/A	N					VR																			
Eriastrum sapphirinum ambiguum	N/A	N		VR						VR	VR	VR	R													
Eriogonum gracillimum	Wild buckwheat	N	VR		VR								VR		VR	VR										
Eriogonum pusillum	Wild buckwheat	N					VR																			
Eriogonum sp.	Wild buckwheat	N															VR	VR							VR	R
Eriophyllum pringlei	N/A	N									VR															
Eriophyllum wallacei	N/A	N				R	VR	VR		VR	VR	VR	VR	VR	VR	R	A	C	VR		C	VR	VR	VR	VR	R
Erodium cicutarium	Filaree	I			C	A	C	R				VR					VR	VR			VR					
Eschscholzia minutiflora minutiflora	California poppy	N										VR														
Euphorbia albomarginata	Rattlesnake weed	N					VR	VR																		
Festuca microstachys	Fescue	N					VR	VR					C	R	A	C		R					VR	A		
Festuca octoflora	Six-weeks fescue	N					VR	VR					R	VR	VR	R	R	R					C	C		
Gilia latiflora	Gilia	N					VR	VR															VR		VR	VR
Gilia minor	Gilia	N					VR	VR													VR		VR			
Gilia sp.	Gilia	N																				VR				
Gutierrezia microcephala	Matchweed	N					VR	C																		
Hordeum glaucum	Barley	I											VR													
Lasthenia glabrata var. calirfornica	Goldenfield	N	VR				VR	VR						VR								VR	VR	C	VR	
Layia glandulosa	N/A	N															VR	VR					VR	VR	R	VR
Lepidium flavum flavum	Peppergrass	N										VR														
Lessingia lemmonii ramulosissima	N/A	N					VR	VR	VR				C	VR	R	C									VR	R
Linanthus parryae	N/A	N																						R		
Loeselliastrum matthewsii	N/A	N					VR	VR																		
Lygodesmia exigua	N/A	N					R	R																		
Malacothrix coulteri	Snake's head	N																								
Malacothrix glabrata	Desert dandelion	N	R	R	R	C	VR	VR	C	C	R	R	C	R	VR	C	C	C	C	C	C	R	R		R	C
Marah fabaceus	Wild cucumber	N														VR			VR							
Mentzelia albicaulis	Blazing star	N					VR	R						VR		R	VR									
Mentzelia sp.	Blazing star	N																			VR					
Monardella exilis	N/A	N																								R

Table A-1a, Page 2 of 3

Scientific Name	Common Name	Status*	Joshua Tree Woodland Transects																							
			4A	4B	5A	5B	7A	7B	17A	17B	25A	25B	26A	26B	30A	30B	31A	31B	36A	36B	37A	37B	38A	38B	46A	46B
Nama demissum	N/A	N					VR	VR	VR	VR	VR					VR	R	VR							VR	VR
Oenothera deltoides	Evening-primrose	N							VR	VR						VR		VR								VR
Oenothera primiveris bufonis	Evening-primrose	N				VR																				
Orthocarpus purpurascens ornatus	Owl's clover	N																VR	VR		VR		VR	VR		
Oryzopsis hymenoides	Ricegrass	N		VR		VR	VR	VR	VR	R						R	VR	VR	VR	VR	R	VR				VR
Pectocarya penicillata	N/A	N			VR	C	VR	VR			VR	VR			VR						VR	VR	VR	R		
Phacelia fremontii	N/A	N					VR																			
Phacelia tanacetifolia	N/A	N					VR	VR															VR			
Phacelia sp.	N/A	N																					VR			
Poa secunda	Nevada bluegrass	N					VR	VR															R	VR		
Salvia carduacea	Thistle sage	N									VR	VR														
Schismus barbatus	N/A	I	VA	VA	VA	C	A	A	A	VA	VA	VA	VA	VA	VA	A	VA	C	VA	VA	VA	VA	VA	VA	A	VA
Sitanion hystrix	Squirreltail	N					VR	VR																		
Sphaeralcea ambigua	Desert mallow	N					VR	VR																	VR	
Stephanomeria myrioclada	N/A	N																							VR	
Stephanomeria parryi	N/A	N							R		VR	VR	R			R							VR			VR
Stillingia paucidentata	N/A	N				VR	VR	VR									VR									
Stipa speciosa	Needlegrass	N					VR	VR																		VR
Streptanthella longirostris	N/A	N			VR					VR	R	VR	VR	VR	VR						R					
Unknown annual composite	Family Asteraceae	N				VR								VR				VR								
Unknown crucifer	Family Brassicaceae	N	VR																							
Unknown dicot forb	Class Dicotyledonae	N			VR	VR			VR							VR										
Unknown monocot forb	Class Monocotyledonae	N			VR																					
Unknown perennial composite	Family Asteraceae	N				VR																				
Unknown polemone	Family Polemoniaceae	N													VR					VR						
Shrub Layer																										
Acamptopappus sphaerocephalus	Goldenhead	N	R	VR	VR	R	VR	C	VR	VR	VR	VR	VR	VR	VR	VR	VR		VR	R	R	C	VR	R	R	R
Ambrosia dumosa	Burro-weed	N	A	A	C	C	VR	VR	A	A	A	A	C	C	R	C	C	C	C	C	A	A	C	C	C	C
Atriplex canescens canescens	Saltbush	N					C	A		VA						C	C	C		C						
Atriplex polycarpa	Saltbush	N					VR					R														
Ceratoides lanata (Eurotia lanata)	N/A	N	R	C		VR	R		C		C	C	VR	C	R	R	R						C	C		R
Chrysothamnus nauseosus mohavensis	Rabbit-brush	N					VR																			
Ephedra nevadensis	Mormon tea	N					VR	VR		VR				R	VR										R	
Eriogonum fasciculatum polifolium	California buckwheat	N					VR																		VR	
Grayia spinosa	Hop-sage	N	R			VR	R	VR			R												R	R		
Haplopappus cooperi	N/A	N					VR	VR			VR	VR												VR		
Hymenoclea salsola	N/A	N	R		C	A	C	C	C	A				VR		C	C		C	C	R	A			R	
Larrea divaricata tridentata	Creosote bush	N	C	C	C	C	VR		C	C	A	A	C	C	C	R			C		C	C	C	C	C	C
Lepidium fremontii	Peppergrass	N					VR	VR																		
Lycium andersonii	Box-thorn	N					VR	VR	VR		VR								R							R
Lycium cooperi	Box-thorn	N				VR	R	VR														R				
Opuntia echinocarpa echinocarpa	Golden cholla	N							VR							VR										VR
Opuntia sp.	Cholla	N																VR								
Tetradymia axillaris	N/A	N																							VR	
Tetradymia stenolepis	N/A	N																	VR					C		

Table A-1a, Page 2 of 3

Scientific Name	Common Name	Status*	Joshua Tree Woodland Transects																							
			4A	4B	5A	5B	7A	7B	17A	17B	25A	25B	26A	26B	30A	30B	31A	31B	36A	36B	37A	37B	38A	38B	46A	46B
Tree Canopy Layer																										
Yucca brevifolia	Joshua tree	N	VR	VR	VR	VR	C	R	R	VR	VR	VR	R	VR	R	R	R	R	R	R	VR	VR	R	R	R	R

																										Mean
Species Richness		16.00	13.00	18.00	28.00	53.00	44.00	23.00	26.00	25.00	25.00	24.00	22.00	24.00	31.00	29.00	27.00	19.00	13.00	21.00	20.00	30.00	24.00	28.00	29.00	25.50
Total Percent Native		81.25	92.31	88.89	89.29	92.45	90.91	95.65	92.31	88.00	88.00	83.33	90.91	91.67	90.32	93.10	88.89	89.47	92.31	90.48	90.00	90.00	91.67	96.43	89.66	90.30

Mean Species Richness		14.50	23.00	48.50	24.50	25.00	23.00	27.50	28.00	16.00	20.50	27.00	28.50
Mean Percent Native		86.78	89.09	91.68	93.98	88.00	87.12	90.99	91.00	90.89	90.24	90.83	93.04

Notes:

* N = Native, I = Introduced, N/A = Not Applicable, no common name in Munz

Table A-1b
Vegetation Data Summary, Edwards AFB
Joshua Tree Woodland, Percent Cover

Scientific Name	Common Name	Status*	Joshua Tree Woodland Transects																								
			4A	4B	5A	5B	7A	7B	17A	17B	25A	25B	26A	26B	30A	30B	31A	31B	36A	36B	37A	37B	38A	38B	46A	46B	Mean
Terrestrial Surface Layer																											
Amsinckia tessellata	Fiddleneck	N	3.62	8.60	5.72	1.84	1.66	3.74	5.46	0.92	3.04	3.34	3.66	8.76	5.34	4.40	0.62	2.12	9.52	2.10	5.04	1.00	4.40	8.50	1.86	6.20	4.23
Astragalus didymocarpus	Locoweed	N																0.06					0.04	0.14			0.08
Astragalus lentiginosus	Locoweed	N					0.30	0.00																			0.15
Astragalus sp.	Locoweed	N																		0.04							0.04
Bromus rubens	Foxtail chess	I					2.72	4.14		0.20	1.86	0.40	0.06	0.96	3.62	0.10			1.60			0.10	0.14	2.28		0.90	1.36
Bromus tectorum	Cheatgrass	I					4.70	1.96			0.62		1.42			0.62										0.06	1.56
Calyptridium monandrum	N/A	N								0.04						0.04	0.02										0.03
Camissonia boothii desertorum	N/A	N							0.10	0.10																	0.10
Camissonia campestris	N/A	N	0.14			0.04	2.14	0.28	0.68	0.64	0.04	0.08	0.18	0.14	0.08	1.16	0.16				0.06		0.06	0.02	0.04	0.06	0.33
Camissonia sp.	N/A	N																0.88	0.06						0.20		0.38
Chaenactis fremontii	N/A	N							0.12			0.18															0.15
Chaenactis stevioides	N/A	N															0.44	0.68							0.06		0.39
Coreopsis bigelovii	Tickseed	N				1.50	0.06	0.00	2.16	1.34			0.06	0.64		1.06	6.74	9.08	0.08	0.74	0.14				2.96	0.26	1.79
Croton californicus mohavensis	Croton	N								0.10																	0.10
Cryptantha dumetorum	N/A	N			0.20		1.44	3.70		0.20					0.30	0.20	0.76	0.50			0.80	1.02	0.60		0.50	0.80	0.85
Cryptantha micrantha micrantha	N/A	N			0.16	0.04	1.06	0.96	0.04	0.14		1.10	0.10		0.40	1.60	0.64	0.64			0.22	0.18		1.38	0.32	1.38	0.61
Cryptantha pterocarya	N/A	N			1.62		0.14	0.00		0.10		0.08			0.22	1.00	0.30	0.04	0.36	0.08	0.14	0.22			0.38	0.10	0.32
Cryptantha sp.	N/A	N		0.80									0.06		0.14												0.33
Descurainia pinnata glabra	Tansy-mustard	N			0.12	0.26	0.06	0.60		0.24		0.16	0.06	1.90	0.60			1.84	0.46		1.74	0.06	0.04	0.30	0.24	0.14	0.52
Eremalche exilis	N/A	N															0.38	0.74									0.56
Eriastrum sapphirinum ambiguum	N/A	N									0.36	0.24															0.30
Eriogonum gracillimum	Wild buckwheat	N			0.04								0.04		0.02	0.04											0.04
Eriogonum pusillum	Wild buckwheat	N					0.64	0.28																			0.46
Eriogonum sp.	Wild buckwheat	N																0.08								0.28	0.18
Eriophyllum pringlei	N/A	N									0.04																0.04
Eriophyllum wallacei	N/A	N				0.58	0.68	0.10		0.02	0.04	0.02		0.08	0.12	0.78	2.74	1.20	0.12		0.48	0.04	0.08	0.18	0.06	0.04	0.41
Erodium cicutarium	Filaree	I	0.02		4.52	3.20	13.08	0.52				1.10						0.44			0.04						2.87
Festuca microstachys	Fescue	N					0.14	1.24					2.42	0.38	12.50	3.26		1.04					0.10	12.50			3.73
Festuca octoflora	Six-weeks fescue	N					0.08						0.28		0.92	1.58	0.70	0.84					4.96	5.00			1.80
Gilia latiflora	Gilia	N					0.48	0.24																			0.36
Gilia minor	Gilia	N					0.10	0.02															0.02				0.05
Gilia sp.	Gilia	N																				0.04					0.04
Gutierrezia microcephala	Matchweed	N					1.46	2.10																			1.78
Hordeum glaucum	Barley	I											0.04														0.04
Lasthenia glabrata var. calirfornic	Goldenfield	N					0.18	0.00																0.84			0.34
Layia glandulosa	N/A	N																							0.04		0.04
Lepidium flavum flavum	Peppergrass	N										1.88															1.88
Lessingia lemmonii ramulosissima	N/A	N					4.88	0.40	0.12				0.48	0.14	0.48	1.00									0.06	0.02	0.84
Linanthus parryae	N/A	N																						0.10			0.10
Lygodesmia exigua	N/A	N					2.66	2.72																			2.69
Malacothrix glabrata	Desert dandelion	N	1.22	0.60	0.58	0.82	2.20	0.66	6.20	4.00	1.52	0.80	1.90	0.46		1.60	2.48	5.42	1.68	2.98	0.72	0.44	1.06	0.20	2.36	6.70	2.03
Marah fabaceus	Wild cucumber	N														0.62											0.62
Mentzelia albicaulis	Blazing star	N					0.68	0.50						0.12		0.66	0.02										0.40
Monardella exilis	N/A	N																								0.22	0.22
Nama demissum	N/A	N					0.04	0.04	0.04	0.18							0.04	0.08									0.07
Nama sp.	N/A	N																							0.02		0.02
Oenothera deltoides	Evening-primrose	N														0.14											0.14
Orthocarpus purpurascens ornatus	Owl's clover	N																	0.04				0.02				0.03

Scientific Name	Common Name	Status*	Joshua Tree Woodland Transects																								Mean
			4A	4B	5A	5B	7A	7B	17A	17B	25A	25B	26A	26B	30A	30B	31A	31B	36A	36B	37A	37B	38A	38B	46A	46B	
Oryzopsis hymenoides	Ricegrass	N					0.54	0.00		0.72						1.20	0.20		0.76	0.16							0.51
Pectocarya penicillata	N/A	N			2.28	0.86	0.28	0.30				1.18			0.10						0.16		0.14	1.28			0.73
Phacelia fremontii	N/A	N					0.34																				0.34
Phacelia tanacetifolia	N/A	N					7.06	0.60																			3.83
Poa secunda	Nevada bluegrass	N																					0.36	0.06			0.21
Schismus barbatus	N/A	I	55.96	52.20	36.68	28.98	39.10	45.34	30.92	26.16	38.16	30.98	17.28	20.54	17.14	11.70	14.04	17.86	38.60	42.02	35.80	32.16	51.20	47.02	14.22	13.52	31.57
Sitanion hystrix	Squirreltail	N						0.46																			0.46
Sphaeralcea ambigua	Desert mallow	N																							0.28		0.28
Stephanomeria parryi	N/A	N							0.12			0.06	0.22			0.64							0.04				0.22
Stephanomeria pauciflora	N/A	N																								0.40	0.40
Stephanomeria sp.	N/A	N																							0.16		0.16
Streptanthella longirostris	N/A	N			0.12							0.18	0.04		0.22						0.88	0.06					0.25
Unknown annual composite	Family Asteraceae	N				0.04								0.04													0.04
Unknown dicot forb	Class Dicotyledonae	N			0.04				0.02							0.30					0.12						0.12
Unknown polemone	Family Polemoniaceae	N													0.02					0.04							0.03
Shrub Layer																											
Acamptopappus sphaerocephalus	Goldenhead	N				1.90	1.64	10.42								0.40				1.44		0.64		0.60	0.80	0.20	2.00
Ambrosia dumosa	Burro-weed	N	7.30	1.84	0.60	0.44			5.58	2.04	4.76		2.00	2.50	4.88	0.40	2.72	4.28	3.30	2.60	3.66	3.88	5.32	3.62	1.92	5.46	3.29
Atriplex canescens canescens	Saltbush	N					8.04	14.48		6.40						0.34	2.06	0.64		9.80							5.97
Atriplex polycarpa	Saltbush	N										0.90															0.90
Eurotia lanata	N/A	N				0.12	1.94	3.60	1.04		0.20	1.56	1.24	1.24	2.56	0.28	0.40						0.56	0.30		2.10	1.22
Ephedra nevadensis	Mormon tea	N								0.60				0.40											0.60		0.53
Grayia spinosa	Hop-sage	N					2.50	0.00			1.50													0.70			1.18
Haplopappus cooperi	N/A	N					0.50	0.00																			0.25
Hymenoclea salsola	N/A	N	0.20		3.16	4.96	10.88	2.58	1.56	0.30				1.60		2.56	1.64		4.22	4.04	1.20	1.60			1.10		2.77
Larrea divaricata tridentata	Creosote bush	N	1.80	16.88	5.00	3.60			2.80	2.90	9.20	10.44	3.78	12.06	5.40	2.20			8.10		14.04		0.40	3.44	13.40	4.14	6.64
Lycium andersonii	Box-thorn	N																1.70	0.30								1.00
Lycium cooperi	Box-thorn	N					1.70	0.00														2.40					1.37
Opuntia echinocarpa echinocarpa	Golden cholla	N														0.60											0.60
Tetradymia stenolepis	N/A	N					0.70	0.00																1.16		1.40	0.82
Tree Canopy Layer																											
Yucca brevifolia	Joshua tree	N	5.80	3.30	9.30	5.90	14.12	8.20	10.10	3.40	2.10	5.80	7.90	3.00	8.30	9.00	8.80	9.40	8.00	8.60	1.00	1.20	10.20	7.10	9.10	6.24	6.91
Bare Ground			30.44	34.44	39.06	47.88	22.76	15.10	42.08	45.66	49.46	56.20	56.64	42.14	37.90	52.38	52.62	44.96	40.18	32.24	43.58	49.18	22.84	24.68	40.48	44.30	40.30
Litter			4.08	3.66	6.20	8.60	14.02	10.98	8.00	14.28	4.92	4.84	10.14	14.82	16.10	9.56	18.02	14.28	11.60	9.88	10.28	12.36	9.62	12.56	13.44	16.78	10.79
Rock			0.04	0.00	0.00	0.08	2.74	11.10	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.10	0.60

Scientific Name	Common Name	Status*	Joshua Tree Woodland Transects																							
			4A	4B	5A	5B	7A	7B	17A	17B	25A	25B	26A	26B	30A	30B	31A	31B	36A	36B	37A	37B	38A	38B	46A	46B	Mean
Total Terrestrial Layer			60.96	62.20	52.08	38.16	88.90	70.90	45.98	35.10	45.68	41.78	28.30	34.16	42.22	33.70	30.28	43.54	53.28	48.16	46.34	35.32	63.26	79.80	23.76	31.08	47.29
Total Shrub Layer			9.30	18.72	8.76	11.02	27.90	31.08	10.98	12.24	15.66	12.90	7.02	17.80	12.84	6.78	6.82	6.62	15.92	17.88	18.90	8.52	6.28	9.82	17.82	13.30	13.54
Total Tree Canopy Layer			5.80	3.30	9.30	5.90	14.12	8.20	10.10	3.40	2.10	5.80	7.90	3.00	8.30	9.00	8.80	9.40	8.00	8.60	1.00	1.20	10.20	7.10	9.10	6.24	6.91
Total Overlay Layer			76.06	84.22	70.14	55.08	130.92	110.18	67.06	50.74	63.44	60.48	43.22	54.96	63.36	49.48	45.90	59.56	77.20	74.64	66.24	45.04	79.74	96.72	50.68	50.62	67.74
Total Projective Cover			65.44	61.90	54.74	43.44	60.48	62.82	49.92	40.06	45.62	38.96	33.08	43.04	46.00	38.06	29.36	40.68	48.22	57.88	46.14	38.46	67.54	62.56	46.08	38.82	48.30

Mean Bare Ground		32.44	43.47	18.93	43.87	52.83	49.39	45.14	48.79	36.21	46.38	23.76	42.39
Mean Litter		3.87	7.40	12.50	11.14	4.88	12.48	12.83	16.15	10.74	11.32	11.09	15.11
Mean Rock		0.02	0.04	6.92	0.00	0.00	0.07	0.00	0.04	0.00	0.00	0.10	0.05

Mean Terrestrial Layer		61.58	45.12	79.90	40.54	43.73	31.23	37.96	36.91	50.72	40.83	71.53	27.42
Mean Shrub Layer		14.01	9.89	29.49	11.61	14.28	12.41	9.81	6.72	16.90	13.71	8.05	15.56
Mean Tree Canopy Layer		4.55	7.60	11.16	6.75	3.95	5.45	8.65	9.10	8.30	1.10	8.65	7.67
Mean Overlay Layer		80.14	62.61	120.55	58.90	61.96	49.09	56.42	52.73	75.92	55.64	88.23	50.65
Mean Projective Cover		63.67	49.09	61.65	44.99	42.29	38.06	42.03	35.02	53.05	42.30	65.05	42.45

Notes:

* I = Introduced, N = Native, N/A = Not Applicable, no common name in Munz

Table A-1c
Vegetation Data Summary, Edwards AFB
Joshua Tree Woodland, Mean Heights of Dominant Shrubs

			Joshua Tree Woodland Transects																							
Scientific Name	**Common Name**	**Status***	**4A**	**4B**	**5A**	**5B**	**7A**	**7B**	**17A**	**17B**	**25A**	**25B**	**26A**	**26B**	**30A**	**30B**	**31A**	**31B**	**36A**	**36B**	**37A**	**37B**	**38A**	**38B**	**46A**	**46B**
Acamptopappus sphaerocephalus	Goldenhead	N					44.00	37.67													47.00					
Ambrosia dumosa	Burro-weed	N	43.33	41.33	46.67	43.33			46.67	47.33	44.33	56.33	44.33	44.00	43.33	48.67	46.00	42.67	36.67	39.33	42.00		42.33	43.67	48.33	48.33
Atriplex canescens canescens	Saltbush	N					93.00	113.33		110.00							89.67	80.33		92.00						
Atriplex polycarpa	Saltbush	N										66.00														
Eurotia lanata	N/A	N	66.67	77.67			59.00	79.00	74.67		65.33	79.00	67.67	65.67	48.00	72.00				48.33			75.00	54.00		62.00
Grayia spinosa	Hop-sage	N					83.00																			
Haplopappus cooperi	N/A	N																				46.67				
Hymenoclea salsola	N/A	N	67.67		61.67	71.67	75.67	92.33	78.33	74.33						82.33	53.33		49.00			56.67			68.33	
Larrea divaricata tridentata	Creosote bush	N	170.33	185.00	169.00	171.67			234.00	200.67	162.67	151.67	198.33	166.67	178.33	177.33			203.33		168.67	160.33	166.67	137.33	177.67	173.67
Lycium andersonii	Box-thorn	N																96.67								
Lycium cooperi	Box-thorn	N					117.33																			
Tetradymia stenolepis	N/A	N																						65.67		

Notes:

N = Native, N/A = Not Applicable, no common name in Munz

Table A-1d
Vegetation Data Summary, Edwards AFB
Joshua Tree *(Yucca brevifolia)* Woodland One-Hectare Sampling* Data Summary

	Field/Transect Section Number																								
	4A	**4B**	**5A**	**5B**	**7A**	**7B**	**17A**	**17B**	**25A**	**25B**	**26A**	**26B**	**30A**	**30B**	**31A**	**31B**	**36A**	**36B**	**37A**	**37B**	**38A**	**38B**	**46A**	**46B**	**Mean**
Mean height (>1.37m**) in m	4.21	4.47	4.48	5.07	4.49	4.14	4.54	5.03	2.98	3.67	6.16	5.88	2.97	4.13	6.45	7.28	4.05	3.63	3.95	2.40	6.80	4.97	4.16	5.26	4.66
Mean DBH*** in cm	22.43	23.71	26.60	27.67	23.20	19.90	24.52	27.00	14.75	17.75	31.00	28.53	14.78	23.42	38.83	44.40	18.30	17.42	14.50	10.00	32.13	26.67	18.95	29.11	24.20
Mean height (<1.37m) in m	0.00	0.00	1.30	0.27	0.36	0.45	0.00	0.43	1.30	0.00	0.00	1.02	0.00	0.34	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.85	0.45	0.51
N count individuals >1.37m	7	7	5	6	15	20	21	11	4	6	12	20	9	32	6	5	10	6	2	1	4	3	19	14	10.21
N count individuals <1.37m	0	0	1	1	14	9	0	4	1	0	0	3	0	7	0	0	0	0	1	0	0	0	3	1	1.88
N count total individuals	7	7	6	7	29	29	21	15	5	6	12	23	9	39	6	5	10	6	3	1	4	3	22	15	12.08

Notes:
* All number counts and measurements are based on a 1-hectare-per-transect sampling strategy.
** 1.37m corresponds to standard breast height used in most plant ecological sampling methodologies.
*** DBH is diameter at breast height.

Table A-2a
Vegetation Data Summary, Edwards AFB
Creosote Bush Scrub, Relative Abundance

Scientific Name	Common Name	Status*	Creosote Bush Scrub Transects																					
			3A	3b	6a	6b	9a	9b	13a	13b	50a	50b	18A	18B	55A	55B	20A	20B	21A	21B	22A	22B	23A	23B
Terrestrial Surface Layer																								
Amsinckia tessellata	Fiddleneck	N	A	A	C	C	C	C	C	C	VR	R	A	C	C	R	R	VR	C	R	VR	VR	VR	VR
Astragalus didymocarpus	Locoweed	N					VR	C			VR	VR			VR	VR		VR			VR	VR	C	VR
Astragalus layneae	Locoweed	N																				VR		
Astragalus lentiginosus	Locoweed	N																						
Astragalus sp.	Locoweed	N																						
Bromus rubens	Foxtail chess	I	VR	VR	R	R	R	C	R	A	C	C	R	VR	C	C	VR	R	R	C	A	C	C	R
Bromus tectorum	Cheatgrass	I		VR		VR	VR	VR	C	R	R	VR			VR	VR	R	VR	C	R	R	R		
Bromus trinii	Bromegrass	I							R	C	R	VR			VR	R	VR	VR	R	R	VR	VR		VR
Camissonia boothii desertorum	N/A	N							VR															
Camissonia campestris	N/A	N	R	C						VR	VR	VR	VR						VR	VR				
Caulanthus inflatus	Desert candle	N																				VR		
Centrostegia thurberi	N/A	N								VR		VR												
Chaenactis fremontii	N/A	N	VR	VR																				
Chaenactis stevioides	N/A	N			VR	C			VR															
Chaenactis xantiana	N/A	N																			VR			VR
Chaenactis sp.	N/A	N																						
Chorizanthe brevicornu brevicornu	N/A	N					VR	VR		R	VR	VR			VR	VR	VR	VR	VR	VR	VR	VR		VR
Chorizanthe perfoliata	N/A	N																						
Chorizanthe sp.	N/A	N																					VR	
Coreopsis bigelovii	Tickseed	N			VR	VR			VR		VR													
Cryptantha dumetorum	N/A	N	R				VR	VR	VR	VR				VR										
Cryptantha micrantha micrantha	N/A	N	VR	R					VR	VR	VR	VR	VR	R						VR				
Cryptantha pterocarya	N/A	N	R	VR										VR										
Cryptantha sp.	N/A	N											VR											
Cuscuta californica	N/A	N													VR	VR		VR	VR	R				
Delphinium parishii parishii	N/A	N		VR																				
Descurainia pinnata glabra	Tansy-mustard	N	VR						VR				VR	VR					VR	VR				
Eremocarpus setigerus	Doveweed	N															VR				VR	VR		
Eriastrum densifolium	N/A	N							VR															
Eriastrum eremicum	N/A	N								VR	VR					VR	VR		VR	VR				
Eriastrum sapphirinum ambiguum	N/A	N					VR	R	VR	R	VR	VR			VR	VR	R	R	R	R	VR	VR		
Eriogonum gracillimum	Wild buckwheat	N					VR	VR	VR	R	VR	VR		VR	R	VR	VR	VR	VR	VR	VR	VR		
Eriogonum inflatum	Desert trumpet	N																			VR	VR		
Eriogonum pusillum	Wild buckwheat	N							VR	R					VR		VR	VR					VR	VR
Eriogonum sp.	Wild buckwheat	N																						
Eriophyllum pringlei	N/A	N												VR										
Eriophyllum wallacei	N/A	N	VR	VR					VR	VR			VR											
Erodium cicutarium	Filaree	I	R	R	VA	VA	C	C	A	A	C	C	A	VA	C	R	R	R	R	R	A	A	VA	VA
Euphorbia albomarginata	Rattlesnake weed	N							VR	R							VR	VR			VR	VR		
Festuca microstachys	Fescue	N					VR	VR	VR	R	R	R		VR	R	R	R	R	A	C		VR	VR	R
Festuca octoflora	Six-weeks fescue	N							VR	VR				VR	VR	VR	R	VR	VR	R		VR	VR	VR
Filago depressa	Filago	N					VR	VR	VR	VR	VR	VR	VR		VR	VR	VR	VR	R	R	VR	VR	VR	VR
Gilia latiflora	Gilia	N	VR						VR		VR	VR		VR	VR	VR	VR	VR	VR	VR	VR	VR		
Gilia minor	Gilia	N			C	C	C	C	VR	VR	VR	VR	VR	VR	R	VR	R	VR	R	VR	A	VR	C	VR
Lasthenia glabrata var. calirfornica	Goldenfield	N		R	R		R	VR	R		R	R			VR	VR	VR	VR	A	A	VA	VA	C	A
Lepidium lasiocarpum	Peppergrass	N																			VR			VR
Lessingia lemmonii ramulosissima	N/A	N							R	R	VR	VR									VR	VR		
Linanthus aureus	N/A	N				VR							C	C										
Linanthus dichotomus	Evening snow	N												VR										
Linanthus parryae	N/A	N											R										VR	VR
Loeselliastrum matthewsii	N/A	N							VR	VR		VR				VR								
Lomatium sp.	N/A	N																						
Lupinus bicolor	Lupine	N																						

Scientific Name	Common Name	Status*	Creosote Bush Scrub Transects																					
			27A	27B	28A	28B	29A	29B	32A	32B	33A	33B	34A	34B	35A	35B	39A	39B	47A	47B	49A	49B	50A	50B
Terrestrial Surface Layer																								
Amsinckia tessellata	Fiddleneck	N	R	VR	R	C	VR	VR	VR	R	VR	VR	C	R	VR	VR	R	C	C	C	C	R	C	C
Astragalus didymocarpus	Locoweed	N	VR	VR		VR	VR	VR		VR	VR	VR	VR	VR	VR	VR	R	R				VR	VR	
Astragalus layneae	Locoweed	N																						
Astragalus lentiginosus	Locoweed	N																		VR				
Astragalus sp.	Locoweed	N																			R			
Bromus rubens	Foxtail chess	I	C	A	A	C	C	C	VR	C	C	A	C	C	R	C	R	C	C	C		C	C	C
Bromus tectorum	Cheatgrass	I	R	R	R	VR			VR	R	R	R	VR	VR			R	C						
Bromus trinii	Bromegrass	I	VR	VR	VR	VR			VR	VR	VR	VR	VR	VR	VR	VR	R	R	VR	VR			VR	VR
Camissonia boothii desertorum	N/A	N																						
Camissonia campestris	N/A	N																				VR		VR
Caulanthus inflatus	Desert candle	N																	VR					
Centrostegia thurberi	N/A	N	VR	VR	VR				VR	VR	VR							VR						
Chaenactis fremontii	N/A	N																						
Chaenactis stevioides	N/A	N																					VR	VR
Chaenactis xantiana	N/A	N						VR		VR														
Chaenactis sp.	N/A	N																			C	C		
Chorizanthe brevicornu brevicornu	N/A	N	VR	VR	VR	VR			R	R	R	VR	VR	VR	VR	VR	VR	VR		VR				
Chorizanthe perfoliata	N/A	N																			VR			
Chorizanthe sp.	N/A	N					VR														R		VR	
Coreopsis bigelovii	Tickseed	N			VR																			
Cryptantha dumetorum	N/A	N										VR					VR	VR	R	R	VR	VR		
Cryptantha micrantha micrantha	N/A	N			VR							VR										VR	VR	
Cryptantha pterocarya	N/A	N																	R	VR	R	R		
Cryptantha sp.	N/A	N																						
Cuscuta californica	N/A	N			VR																			
Delphinium parishii parishii	N/A	N																						
Descurainia pinnata glabra	Tansy-mustard	N																				VR	VR	
Eremocarpus setigerus	Doveweed	N			VR							VR												
Eriastrum densifolium	N/A	N																						
Eriastrum eremicum	N/A	N	VR		VR	VR			VR	VR					VR	R								
Eriastrum sapphirinum ambiguum	N/A	N	R	VR	R	R			VR	R	VR	VR	R	VR			R	VR						
Eriogonum gracillimum	Wild buckwheat	N	VR	VR	VR	VR			VR	R	VR	VR	VR	VR	VR	VR	VR						VR	
Eriogonum inflatum	Desert trumpet	N																						
Eriogonum pusillum	Wild buckwheat	N			VR	VR	VR		VR	VR														
Eriogonum sp.	Wild buckwheat	N																						VR
Eriophyllum pringlei	N/A	N																					VR	
Eriophyllum wallacei	N/A	N																						
Erodium cicutarium	Filaree	I	C	R	C	R	VA	VA	VR	C	C	C	C	C	A	VA	C	C	A	A	C	C	A	A
Euphorbia albomarginata	Rattlesnake weed	N	VR	VR	VR	VR	VR		VR	VR	VR	VR	VR				VR	VR						
Festuca microstachys	Fescue	N	R	R	VR	R	R	VR	R	R	VR	A	C	C	R	C	R	R	VR	VR		R	VR	
Festuca octoflora	Six-weeks fescue	N	VR	VR	VR	VR				VR			VR	VR	VR				VR	R	VR	R		VR
Filago depressa	Filago	N	VR	VR	VR	VR	VR		R	VR	VR	VR	VR	VR	VR	VR	VR	R						
Gilia latiflora	Gilia	N			VR	VR					VR	VR		VR										
Gilia minor	Gilia	N	VR	VR	VR	VR	R	C	R	R	VR	VR	R	VR	R	C	R	R	R	R		R	C	C
Lasthenia glabrata var. calirfornica	Goldenfield	N	VR	VR	R	VR	VR	VR	R	C	R	R	C	C	A	A	R	C	VR	VR	C	C	R	VR
Lepidium lasiocarpum	Peppergrass	N									VR	VR	VR	VR	VR	VR	VR	VR						
Lessingia lemmonii ramulosissima	N/A	N				VR																		
Linanthus aureus	N/A	N																						
Linanthus dichotomus	Evening snow	N																						
Linanthus parryae	N/A	N					R	VR															VR	
Loeselliastrum matthewsii	N/A	N																						
Lomatium sp.	N/A	N													VR									
Lupinus bicolor	Lupine	N					VR																	

Scientific Name	Common Name	Status*	Creosote Bush Scrub Transects																					
			3A	3b	6a	6b	9a	9b	13a	13b	50a	50b	18A	18B	55A	55B	20A	20B	21A	21B	22A	22B	23A	23B
Lupinus odoratus	Lupine	N																				VR		
Lygodesmia exigua	N/A	N				VR			VR	VR	VR	VR						VR						
Malacothrix coulteri	Snake's head	N			VR	R	VR																	
Malacothrix glabrata	Desert dandelion	N	VR	VR	VR	VR		VR	R	VR	VR	VR		VR							VR	VR		
Marah fabaceus	Wild cucumber	N									VR			VR			VR			VR				
Mentzelia albicaulis	Blazing star	N			VR																			
Mentzelia sp.	Blazing star	N										VR												
Mirabilis bigelovii aspera	Four-o'clock	N					VR	VR	VR	VR	VR				VR	VR	VR	VR	VR	VR		VR		VR
Mirabilis bigelovii retrorsa	Four-o'clock	N				VR																		
Monoptilon bellidiforme	Desert star	N																						
Nama demissum	N/A	N			C	C			VR															
Opuntia basilaris	Beavertail cactus	N																VR		VR				
Orthocarpus purpurascens ornatus	Owl's clover	N		VR										VR										
Oryzopsis hymenoides	Ricegrass	N	VR	VR					VR		VR	VR		VR								VR		
Pectocarya penicillata	N/A	N	R	R			VR	VR	R	R	R	R	VR	C	C	C	A	A	C	C	VR	VR		
Pectocarya platycarpa	N/A	N																	VR		VR			
Phacelia fremontii	N/A	N																						
Phacelia tanacetifolia	N/A	N	VR		C	C	VR	C	C	R	VR	VR			R	R	R	VR	R	R	VR	VR	R	R
Phacelia sp.	N/A	N						VR																
Plagiobothrys canescens	N/A	N																						
Plagiobothrys sp.	N/A	N																						
Poa secunda	Nevada bluegrass	N		R					VR	VR	VR				VR	VR	R	VR	C	A	VR	VR	VR	VR
Salvia carduacea	Thistle sage	N									VR													
Schismus barbatus	N/A	I	VA	VA	C	R		C	A	A	C	C	C	C	C	A	C	A	R	R	A	A	VA	C
Sitanion hystrix	Squirreltail	N							VR	VR	VR	VR						VR		VR	VR	VR		
Stephanomeria parryi	N/A	N												VR										
Stephanomeria pauciflora	N/A	N															VR							
Stipa speciosa	Needlegrass	N							VR	R	VR	VR			VR		VR	VR	VR	VR	VR	VR		
Streptanthella longirostris	N/A	N			R	R	VR						VR		VR					VR	VR	VR	VR	VR
Syntrichopappus fremontii	N/A	N																						
Trifolium gracilentum	N/A	N									VR									R				
Tropidocarpum gracile	N/A	N									VR								VR		VR			
Xylorhiza tortifolia	Desert aster	N													VR	R							R	
Unknown annual composite	Family Asteraceae	N																					VR	
Unknown borage	Family Boraginaceae	N																						
Unknown crucifer	Family Brassicaceae	N												VR										
Unknown monocot forb	Class Monocotyledon	N											VR	VR										
Unknown polemone	Family Polemoniacea	N																						
Shrub Layer																								
Acamptopappus sphaerocephalus	Goldenhead	N	C	R	R	VR	VR	VR	C		C	C	R	VR	VR	VR	VR	R	R	R	VR	C	VR	
Ambrosia dumosa	Burro-weed	N	A	A	C	A	R	R	C	C	R	C	C	C		R	C	R	C	R	VR	VR		C
Atriplex canescens canescens	Saltbush	N							VR															
Atriplex polycarpa	Saltbush	N		C	R	C							R											
Atriplex spinifera	Saltbush	N																						
Eurotia lanata	N/A	N		VR		VR			VR			VR		VR	VR	C	VR	VR				VR	VR	VR
Chrysothamnus teretifolius	Rabbit-brush	N																		VR				

Scientific Name	Common Name	Status*	Creosote Bush Scrub Transects																					
			27A	27B	28A	28B	29A	29B	32A	32B	33A	33B	34A	34B	35A	35B	39A	39B	47A	47B	49A	49B	50A	50B
Lupinus odoratus	Lupine	N						VR											VR				R	
Lygodesmia exigua	N/A	N	VR			VR		VR																
Malacothrix coulteri	Snake's head	N																		VR			VR	
Malacothrix glabrata	Desert dandelion	N					VR			VR											R	C	R	VR
Marah fabaceus	Wild cucumber	N																						
Mentzelia albicaulis	Blazing star	N																		VR		VR		
Mentzelia sp.	Blazing star	N																						
Mirabilis bigelovii aspera	Four-o'clock	N	VR	VR	VR	VR	VR	VR	VR	VR	VR	VR			VR	VR	VR	VR			R			R
Mirabilis bigelovii retrorsa	Four-o'clock	N											VR	VR										
Monoptilon bellidiforme	Desert star	N																					R	VR
Nama demissum	N/A	N																						
Opuntia basilaris	Beavertail cactus	N																						
Orthocarpus purpurascens ornatus	Owl's clover	N																						
Oryzopsis hymenoides	Ricegrass	N																						
Pectocarya penicillata	N/A	N	R	VR	R	R			R	R	C	C	R	R	VR	VR				VR	VR	R		VR
Pectocarya platycarpa	N/A	N			VR	VR																		
Phacelia fremontii	N/A	N											VR	VR		VR			VR	R			R	
Phacelia tanacetifolia	N/A	N	VR	VR	VR	VR	VR	R	C	R	VR	VR	C	VR	R	R	R	C	C	C	R	R	C	C
Phacelia sp.	N/A	N																			VR	VR		R
Plagiobothrys canescens	N/A	N																	VR					
Plagiobothrys sp.	N/A	N																					VR	
Poa secunda	Nevada bluegrass	N	VR	VR	VR				VR	VR					VR									
Salvia carduacea	Thistle sage	N																				VR		
Schismus barbatus	N/A	I	C	VA	A	A	VA	VA	C	A	R	C	C	R	VA	VA	C	A	C	C	A	A	C	C
Sitanion hystrix	Squirreltail	N			VR	VR	VR					VR												
Stephanomeria parryi	N/A	N																						
Stephanomeria pauciflora	N/A	N																						
Stipa speciosa	Needlegrass	N			VR	VR			VR		VR	VR												
Streptanthella longirostris	N/A	N			VR	VR	R		VR	VR		VR	VR	VR	VR	VR	VR	VR	R	VR	VR	R	C	C
Syntrichopappus fremontii	N/A	N																				R		
Trifolium gracilentum	N/A	N																						
Tropidocarpum gracile	N/A	N			VR						VR				VR									
Xylorhiza tortifolia	Desert aster	N				VR		R	VR	VR							R		C	C	R		VR	
Unknown annual composite	Family Asteraceae	N																		VR				
Unknown borage	Family Boraginaceae	N							VR															
Unknown crucifer	Family Brassicaceae	N																						
Unknown monocot forb	Class Monocotyledon	N																						
Unknown polemone	Family Polemoniacea	N																	VR	VR			R	VR
Shrub Layer																								
Acamptopappus sphaerocephalus	Goldenhead	N	VR	VR	VR	VR	R	VR	C	C	VR		VR	VR			VR	VR			R		VR	VR
Ambrosia dumosa	Burro-weed	N	VR	VR	VR	VR	R	C	R	R	R	VR	VR	VR	C		C	C	A	A	A		A	A
Atriplex canescens canescens	Saltbush	N																						
Atriplex polycarpa	Saltbush	N															A	C	C	C		C		
Atriplex spinifera	Saltbush	N																			VR			
Eurotia lanata	N/A	N	VR	VR	VR	VR	VR	VR	VR	R				VR							R			
Chrysothamnus teretifolius	Rabbit-brush	N																						

Scientific Name	Common Name	Status*	Creosote Bush Scrub Transects																					
			3A	3b	6a	6b	9a	9b	13a	13b	50a	50b	18A	18B	55A	55B	20A	20B	21A	21B	22A	22B	23A	23B
Ephedra nevadensis	Mormon tea	N					R	VR	R	VR					R	R	VR	VR	VR	C	VR	VR	VR	C
Eriogonum fasciculatum polifolium	California buckwheat	N							VR						VR	VR	VR	R	VR	R		VR		R
Grayia spinosa	Hop-sage	N				VR		VR	R	C		VR			VR	VR		VR	R	VR	VR	VR	VR	R
Haplopappus cooperi	N/A	N						VR	C	C	R	R			VR	VR	R	R	C	C	VR	VR	VR	C
Hymenoclea salsola	N/A	N						VR	C	R	R	VR			VR	VR	C	VR	VR	C		R		VR
Larrea divaricata tridentata	Creosote bush	N	A	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	A	A	C	C
Lycium andersonii	Box-thorn	N			R				VR	VR		VR	VR		VR	VR	R	R	VR	R	VR	VR		R
Lycium cooperi	Box-thorn	N	VR	R					VR	VR											VR	VR	VR	
Opuntia echinocarpa echinocarpa	Golden cholla	N						VR			VR	VR					VR	VR	VR	VR	VR			
Tetradymia axillaris	N/A	N							VR										VR	R				
Tetradymia stenolepis	N/A	N					R	VR	R	R					VR	VR		VR	VR	VR	VR	VR	C	C
Tree Canopy Layer																								
Yucca brevifolia	Joshua tree	N							VR	VR	VR	VR							VR			VR		
Species Richness			20.0	23.0	19.0	22.0	23.0	28.0	51.0	41.0	40.0	38.0	21.0	28.0	35.0	35.0	36.0	39.0	39.0	43.0	39.0	45.0	26.0	30.0
Total Percent Native			85.0	82.6	84.2	81.8	87.0	85.7	90.2	87.8	87.5	86.8	85.7	89.3	85.7	85.7	86.1	87.2	87.2	88.4	87.2	88.9	88.5	86.7
Mean Species Richness			21.5		20.5		25.5		46.0		39.0		24.5		35.0		37.5		41.0		42.0		28.0	
Mean Percent Native			83.8		83.0		86.3		89.0		87.2		87.5		85.7		86.6		87.8		88.0		87.6	

Notes:

* N = Native, I = Introduced, N/A = Not Applicable, no common name in Munz

Scientific Name	Common Name	Status*	Creosote Bush Scrub Transects																					
			27A	27B	28A	28B	29A	29B	32A	32B	33A	33B	34A	34B	35A	35B	39A	39B	47A	47B	49A	49B	50A	50B
Ephedra nevadensis	Mormon tea	N	VR	VR	VR	VR		VR	C	C	VR	VR			C	R	VR	VR			C		VR	R
Eriogonum fasciculatum polifolium	California buckwheat	N		VR	VR	VR	VR		R		R	VR	VR	VR	VR									
Grayia spinosa	Hop-sage	N		VR	VR	VR	R	VR	R	VR					VR		VR	VR			R			
Haplopappus cooperi	N/A	N	VR	VR	VR	VR	VR	R	VR	R		VR	VR	VR	VR	R	R	C				R		
Hymenoclea salsola	N/A	N	VR	VR	VR	VR	R	R	R		VR	VR		VR			R	C			R	C		
Larrea divaricata tridentata	Creosote bush	N	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	A	A		C	C	C
Lycium andersonii	Box-thorn	N	VR	VR	VR	VR	R	VR	R	C		VR	VR	VR	C	VR	VR	VR		VR	C	C	R	C
Lycium cooperi	Box-thorn	N																						
Opuntia echinocarpa echinocarpa	Golden cholla	N			VR							VR												
Tetradymia axillaris	N/A	N	VR																					
Tetradymia stenolepis	N/A	N		VR	VR	VR	VR	R	R	C	VR	VR	VR	R	VR	VR	R	C				R		
Tree Canopy Layer																								
Yucca brevifolia	Joshua tree	N			VR														VR					

																								Mean
Species Richness			32.0	32.0	45.0	40.0	29.0	25.0	36.0	36.0	30.0	35.0	29.0	31.0	30.0	24.0	31.0	30.0	23.0	26.0	26.0	29.0	31.0	24.0	31.7
Total Percent Native			84.4	84.4	88.9	87.5	89.7	88.0	86.1	86.1	83.3	85.7	82.8	83.9	86.7	83.3	83.9	83.3	82.6	84.6	92.3	89.7	87.1	83.3	86.2

Mean Species Richness		32.0	42.5	27.0	36.0	32.5	30.0	27.0	30.5	24.5	27.5	27.5	
Mean Percent Native		84.4	88.2	88.8	86.1	84.5	83.3	85.0	83.6	83.6	91.0	85.2	

Notes:

* N = Native, I = Introduced, N/A = Not Applicable, no common name in Munz

Table A-2b
Vegetation Data Summary, Edwards AFB
Creosote Bush Scrub, Percent Cover

Scientific Name	Common Name	Status*	Creosote Bush Scrub Transects																					
			3A	3B	6A	6B	9A	9B	13A	13B	16A	16B	18A	18B	19A	19B	20A	20B	21A	21B	22A	22B	23A	23B
Terrestrial Surface Layer																								
Amsinckia tessellata	Fiddleneck	N	11.78	8.36	0.30	4.24	5.66	6.10	12.72	11.16	5.02	5.00	4.10	1.84	8.60	4.42	4.16	3.20	10.12	4.50	3.16	2.34	0.54	0.12
Astragalus didymocarpus	Locoweed	N					13.04	8.42			0.42	0.22			0.52	0.32		0.14			0.14		11.52	0.80
Astragalus sp.	Locoweed	N																						
Bromus rubens	Foxtail chess	I	0.06	0.24	0.24	7.14	10.50	9.26	6.56	15.50	20.28	13.44	1.60	0.40	14.54	20.92	1.58	5.42	9.78	13.60	39.54	11.62	17.98	12.04
Bromus tectorum	Cheatgrass	I		0.04		0.20		0.20	14.96	2.20	3.08	0.20			0.40	1.44	3.44	0.18	16.98	1.42	2.06	3.86		
Bromus trinii	Bromegrass	I							3.46	5.04	5.16	7.90			10.40	7.16	1.74	2.92	0.74	2.10	1.00	3.70		
Camissonia campestris	N/A	N	1.02	0.74					0.82	0.06	0.42	0.48							0.04	0.34				
Centrostegia thurberi	N/A	N								0.10		0.08												
Chaenactis fremontii	N/A	N	0.04	0.04																				
Chaenactis stevioides	N/A	N				1.00			0.44															
Chaenactis xantiana	N/A	N																			0.02			0.10
Chaenactis sp.	N/A	N																						
Chorizanthe brevicornu brevicornu	N/A	N					3.12	2.00		1.34	0.04	0.12			0.22	0.12	0.16	0.10	0.60	0.42	1.12	0.10		
Chorizanthe perfoliata	N/A	N																						
Chorizanthe sp.	N/A	N																					0.06	0.14
Coreopsis bigelovii	Tickseed	N			0.26	0.10			0.70		0.10													
Cryptantha dumetorum	N/A	N	1.14				0.06	0.06	0.60	0.30				0.12										
Cryptantha micrantha micrantha	N/A	N	0.20	1.84					0.54	0.36	0.42	0.52	0.06	0.20					0.54	0.04				
Cryptantha pterocarya	N/A	N	0.14	0.08										0.12										
Cryptantha sp.	N/A	N											0.04											
Cuscuta californica	N/A	N																	2.80	1.10				
Delphinium parishii parishii	N/A	N		0.06																				
Descurainia pinnata glabra	Tansy-mustard	N	0.38						0.20				0.06	0.54					0.08	0.10				
Eremocarpus setigerus	Doveweed	N																			0.14			
Eriastrum eremicum	N/A	N																						
Eriastrum sapphirinum ambiguum	N/A	N					1.60	0.56	1.22	0.44	0.08	0.06			0.18	0.20	4.30	2.14	1.26	0.72	0.98	1.12		
Eriogonum gracillimum	Wild buckwheat	N					2.32	1.88	0.70	1.28	0.08	0.12		0.02	3.12	2.54	0.90	0.32	0.26	0.18	0.04			
Eriogonum inflatum	Desert trumpet	N																			2.62			
Eriogonum pusillum	Wild buckwheat	N							0.58	1.34					0.46	0.32							0.30	0.28
Eriogonum sp.	Wild buckwheat	N																						
Eriophyllum pringlei	N/A	N												0.04										
Eriophyllum wallacei	N/A	N	0.14	0.30					0.36	0.06														
Eriophyllum sp.	N/A	N																						
Erodium cicutarium	Filaree	I	1.58	0.60	28.02	28.12	31.90	30.40	28.02	30.36	16.16	20.48	26.04	18.26	11.56	9.86	5.74	7.10	5.92	4.52	31.88	20.50	39.80	31.82
Euphorbia albomarginata	Rattlesnake weed	N								0.66														
Festuca microstachys	Fescue	N					0.14	0.00	7.28	3.60	7.72	7.82		1.12	11.38	7.14	12.04	7.94	26.14	9.38		1.60	6.36	2.68
Festuca octoflora	Six-weeks fescue	N							0.10	0.44				0.48	0.70	1.38	5.94	1.40	0.46	0.78		0.04	0.16	0.48
Filago depressa	Filago	N					0.16	0.04	0.28	0.72	0.10	0.12	0.04		0.38	0.28	0.18	0.08	0.78	1.56	0.22	0.78	0.06	0.32
Gilia latiflora	Gilia	N	0.04								0.22	0.04	0.06	0.04	0.38	0.14			0.38	0.28	0.62			
Gilia minor	Gilia	N			0.50	1.52	11.68	10.46	0.32	0.32	0.22	0.28	0.22	0.06	2.46	1.60	1.06	1.18	1.38	0.84	4.64	0.44	10.18	3.30
Hordeum leporinum	Barley	I	0.80																					
Lasthenia glabrata var. calirfornica	Goldenfield	N		0.28			1.12	3.22	8.20	9.20	7.44	3.46			0.14	0.28	1.42	1.98	24.18	22.26	31.86	32.48	6.56	15.60
Lepidium lasiocarpum	Peppergrass	N																			0.38			
Lepidium sp.	Peppergrass	N																						0.38
Lessingia lemmonii ramulosissima	N/A	N							2.98	0.70	0.10	0.04									0.04			
Linanthus aureus	N/A	N											0.40	1.26										
Linanthus dichotomus	Evening snow	N												0.26										
Linanthus parryae	N/A	N																					0.12	0.70
Linanthus sp.	N/A	N																						

Scientific Name	Common Name	Status*	Creosote Bush Scrub Transects																					
			3A	3B	6A	6B	9A	9B	13A	13B	16A	16B	18A	18B	19A	19B	20A	20B	21A	21B	22A	22B	23A	23B
Loeselliastrum matthewsii	N/A	N														0.18								
Lupinus odoratus	Lupine	N																						
Lygodesmia exigua	N/A	N				0.06			1.46	0.10								0.30						
Malacothrix coulteri	Snake's head	N			0.10	0.40	0.04																	
Malacothrix glabrata	Desert dandelion	N	0.20	0.14	0.66	0.10		0.06	0.72	0.20	0.10	0.06		0.32							0.54	0.94		
Mentzelia albicaulis	Blazing star	N																						
Mentzelia sp.	Blazing star	N										0.02												
Mirabilis bigelovii aspera	Four-o'clock	N															0.70		0.64	0.70				0.60
Monoptilon bellidiforme	Desert star	N																						
Nama demissum	N/A	N				0.04			0.14															
Orthocarpus purpurascens ornatus	Owl's clover	N		0.08																				
Oryzopsis hymenoides	Ricegrass	N									0.90			0.16										
Pectocarya penicillata	N/A	N	0.74	0.56			0.56	1.18	2.90	1.30	3.64	5.18	0.04	3.02	10.66	5.34	25.32	16.66	5.94	20.46	1.30	3.14		
Pectocarya platycarpa	N/A	N																	0.30		0.04			
Phacelia fremontii	N/A	N																						
Phacelia tanacetifolia	N/A	N			5.24	5.70	7.92	8.00	6.46	4.90	2.76	5.10			8.12	2.50	2.70	7.52	4.20	2.60	0.60	2.80	5.20	5.80
Phacelia sp.	N/A	N				0.04		0.10																
Plagiobothrys canescens	N/A	N																						
Plagiobothrys sp.	N/A	N																						
Poa secunda	Nevada bluegrass	N		0.20					0.10	0.20					2.14	2.90	3.10	0.80	20.48	24.16				0.86
Salvia carduacea	Thistle sage	N																						
Schismus barbatus	N/A	I	46.10	42.32	2.16	4.04	29.58	30.06	19.38	32.60	34.10	35.82	7.72	6.68	36.00	44.34	21.92	27.52	4.16	0.90	16.00	12.62	16.00	6.92
Sitanion hystrix	Squirreltail	N									0.14					0.28		0.60				0.50		
Stephanomeria parryi	N/A	N												0.02										
Stipa speciosa	Needlegrass	N																						
Streptanthella longirostris	N/A	N			0.24	0.90	0.20						0.26		0.38					0.10	0.20	0.30		0.06
Syntrichopappus fremontii	N/A	N																						
Trifolium gracilentum	N/A	N									0.08					0.00								
Tropidocarpum gracile	N/A	N									0.06								0.06	5.74	0.30			
Xylorhiza tortifolia	Desert aster	N													0.90								0.90	
Unknown annual composite	Family Asteraceae	N																						
Unknown crucifer	Family Brassicaceae	N												0.08										
Unknown dicot forb	Class Dicotyledonae	N																						
Unknown monocot forb	Class Monocotyledonae	N												0.10										
Unknown polemone	Family Polemoniaceae	N																						
Shrub Layer																								
Acamptopappus sphaerocephalus	Goldenhead	N	0.80						2.50		5.36	1.90				2.38			1.94	1.20		3.80		
Ambrosia dumosa	Burro-weed	N	1.20	3.94	1.80	5.64		1.20	0.70	3.06	0.80	0.80	0.60	0.24			1.08	0.40	2.34	1.04				1.50
Atriplex polycarpa	Saltbush	N			1.50	2.60																		
Eurotia lanata	N/A	N												0.64		10.66								0.04
Ephedra nevadensis	Mormon tea	N							2.74						5.50	3.46		1.40		1.60	1.06			1.24
Eriogonum fasciculatum polifolium	California buckwheat	N																2.60		1.30				1.00
Grayia spinosa	Hop-sage	N							2.18	2.30						0.50			1.50				1.70	
Haplopappus cooperi	N/A	N							2.52	2.12	0.40	2.40					2.42	1.26	7.30	2.38	1.80			1.60
Hymenoclea salsola	N/A	N							2.10	1.40	2.72				0.76		6.98	1.90		6.88		0.30		
Larrea divaricata tridentata	Creosote bush	N	17.52	6.16	4.24	11.26	20.36	20.26	19.00	18.26	24.32	22.02	8.30	2.90	22.10	15.12	7.26	22.10	16.86	16.88	31.82	27.02	9.76	21.66
Lycium andersonii	Box-thorn	N											0.40				1.70	4.60		1.66		2.90		0.70
Lycium cooperi	Box-thorn	N							0.70															
Tetradymia axillaris	N/A	N																						
Tetradymia stenolepis	N/A	N								2.20										1.24	0.02		1.28	1.20

Table A-2b, Page 3 of 6

Scientific Name	Common Name	Status*	Creosote Bush Scrub Transects																				
			3A	3B	6A	6B	9A	9B	13A	13B	16A	16B	18A	18B	19A	19B	20A	20B	21A	21B	22A	22B	23A	23B
Bare Ground			28.06	39.84	51.42	44.96	4.66	3.96	13.08	9.76	15.98	12.60	47.82	57.06	3.96	5.42	5.80	5.78	4.68	1.34	6.28	9.86	4.54	4.40
Litter			14.64	10.32	7.70	7.22	6.82	8.58	13.08	8.12	10.48	9.40	6.84	8.90	12.90	10.62	11.98	12.88	9.52	10.02	8.60	10.38	3.30	6.82
Rock			0.00	0.06	0.00	0.00	20.64	27.86	8.14	12.38	9.32	12.68	0.00	0.06	15.94	16.78	26.28	21.66	16.76	21.50	9.16	17.52	21.36	29.96
Total Terrestrial Layer			64.36	55.88	37.72	53.60	119.60	112.00	122.20	124.48	108.84	106.56	40.64	35.14	123.64	113.66	96.40	87.50	138.22	118.80	139.44	98.88	115.74	83.00
Total Shrub Layer			19.52	10.10	7.54	19.50	20.36	21.46	32.44	29.34	33.60	27.12	9.30	3.78	28.36	32.12	19.44	34.26	29.94	34.18	34.70	34.02	12.74	28.94
Total Tree Canopy Layer			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Overlay Layer			83.88	65.98	45.26	73.10	139.96	133.46	154.64	153.82	142.44	133.68	49.94	38.92	152.00	145.78	115.84	121.76	168.16	152.98	174.14	132.90	128.48	111.94
Total Projective Cover			57.30	49.78	40.88	47.82	67.88	59.60	65.70	69.74	64.22	65.32	45.34	33.98	67.20	67.18	55.94	59.68	69.04	67.14	75.96	62.24	70.80	58.82
Mean Bare Ground			33.95		48.19		4.31		11.42		14.29		52.44		4.69		5.79		3.01		8.07		4.47	
Mean Litter			12.48		7.46		7.70		10.60		9.94		7.87		11.76		12.43		9.77		9.49		5.06	
Mean Rock			0.03		0.00		24.25		10.26		11.00		0.03		16.36		23.97		19.13		13.34		25.66	
Mean Terrestrial Layer			60.12		45.66		115.80		123.34		107.70		37.89		118.65		91.95		128.51		119.16		99.37	
Mean Shrub Layer			14.81		13.52		20.91		30.89		30.36		6.54		30.24		26.85		32.06		34.36		20.84	
Mean Tree Canopy Layer			0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00	
Mean Overlay Layer			74.93		59.18		136.71		154.23		138.06		44.43		148.89		118.80		160.57		153.52		120.21	
Mean Projective Cover			53.54		44.35		63.74		67.72		64.77		39.66		67.19		57.81		68.09		69.10		64.81	

Notes:

* I = Introduced, N = Native, N/A = Not Applicable, no common name in Munz

Scientific Name	Common Name	Status*	Creosote Bush Scrub Transects																						
			27A	27B	28A	28B	29A	29B	32A	32B	33A	33B	34A	34B	35A	35B	39A	39B	47A	47B	49A	49B	50A	50B	Mean
Terrestrial Surface Layer																									
Amsinckia tessellata	Fiddleneck	N	9.30	4.98	4.44	9.36	0.22	0.52	1.68	2.26	7.28	4.82	9.76	4.46	1.08	0.26	4.34	0.34	5.62	3.80	2.36	1.66	5.98	4.90	4.70
Astragalus didymocarpus	Locoweed	N	0.54	0.10		0.04	0.78	0.78		0.90	0.40	1.16	1.04	1.18	0.64	2.60	2.94	1.66							2.10
Astragalus sp.	Locoweed	N																			0.16	0.02	0.02		0.07
Bromus rubens	Foxtail chess	I	28.00	20.52	30.20	15.98	11.50	7.38	21.78	26.94	24.24	21.88	25.04	18.30	6.70	11.26	7.68	17.78	1.02	0.64	3.10	6.40	3.70	7.96	12.51
Bromus tectorum	Cheatgrass	I	4.34	11.40	4.08	0.08			0.14	0.58	0.84	5.54	0.20	1.80			2.00	1.24							3.07
Bromus trinii	Bromegrass	I	8.76	5.14	5.80	1.60			0.86	2.20	0.20		8.62	0.90	0.70	0.10	6.00	1.90	0.24	0.20			0.12	0.90	3.30
Camissonia campestris	N/A	N																				0.10		0.02	0.40
Centrostegia thurberi	N/A	N								0.06	0.30														0.14
Chaenactis fremontii	N/A	N																							0.04
Chaenactis stevioides	N/A	N																						0.08	0.51
Chaenactis xantiana	N/A	N						0.04																	0.05
Chaenactis sp.	N/A	N																			1.52	0.98			1.25
Chorizanthe brevicornu brevicornu	N/A	N	0.20	0.06	1.60	0.30			0.40	0.54	4.90	3.40	0.72	0.78			0.70	2.82		0.06	0.14				0.97
Chorizanthe perfoliata	N/A	N																			0.08				0.08
Chorizanthe sp.	N/A	N					0.04								0.04	0.16							0.04		0.08
Coreopsis bigelovii	Tickseed	N			1.88																				0.61
Cryptantha dumetorum	N/A	N															0.14		0.20	1.00		0.40			0.40
Cryptantha micrantha micrantha	N/A	N			0.50																	0.04	0.06		0.41
Cryptantha pterocarya	N/A	N																	0.14	0.10	1.12	0.08			0.25
Cryptantha sp.	N/A	N																							0.04
Cuscuta californica	N/A	N			0.80																				1.57
Delphinium parishii parishii	N/A	N																							0.06
Descurainia pinnata glabra	Tansy-mustard	N																				0.28			0.23
Eremocarpus setigerus	Doveweed	N																							0.14
Eriastrum eremicum	N/A	N							0.14																0.14
Eriastrum sapphirinum ambiguum	N/A	N	2.54	0.06	1.68	2.92			1.16	1.48	1.52	0.34	2.36	0.62			0.02	0.04							1.14
Eriogonum gracillimum	Wild buckwheat	N	2.58	2.38	0.10	1.20			0.92	1.72		0.58	0.60	0.66	0.10	3.24	0.92	2.30							1.15
Eriogonum inflatum	Desert trumpet	N																							2.62
Eriogonum pusillum	Wild buckwheat	N				1.00			0.08	0.08								0.10							0.45
Eriogonum sp.	Wild buckwheat	N					0.08																0.06	0.04	0.06
Eriophyllum pringlei	N/A	N						0.04																	0.04
Eriophyllum wallacei	N/A	N																							0.22
Eriophyllum sp.	N/A	N																					0.12		0.12
Erodium cicutarium	Filaree	I	22.70	9.28	11.10	6.34	40.60	27.74	9.02	18.80	16.72	20.90	32.60	29.44	23.52	38.96	31.42	26.76	8.44	6.10	6.92	14.94	5.82	7.24	19.18
Euphorbia albomarginata	Rattlesnake weed	N				2.14				0.30	0.66		0.30					1.02							0.85
Festuca microstachys	Fescue	N	13.84	15.18	1.20	5.36	0.42	0.10	3.10	8.74	6.20	21.02	28.62	12.14	2.04	6.44	9.28	5.14	0.78	0.82		0.08	0.08		7.03
Festuca octoflora	Six-weeks fescue	N	0.62	2.24		1.54				0.36		0.76	0.64	0.14	0.84			0.54	0.26	1.08	0.42	0.42		0.20	0.86
Filago depressa	Filago	N	0.22	0.02	0.44	0.08	0.12		2.42	0.18	1.60	0.46	1.24	1.14	0.24	0.66	1.08	1.24							0.54
Gilia latiflora	Gilia	N			0.04	0.22					0.56	0.20		0.82											0.27
Gilia minor	Gilia	N	0.84	0.32	0.68	0.50	4.52	2.78	2.34	1.92	1.76	0.86	5.90	3.28	1.48	4.02	3.32	2.38	0.64	0.84		1.26	3.88	1.30	2.38
Hordeum leporinum	Barley	I																							0.80
Lasthenia glabrata var. calirfornica	Goldenfield	N	1.08	0.06	7.18	0.78	0.16	0.68	3.62	8.66	14.44	10.94	13.98	23.62	12.96	22.38	7.48	10.10	0.08	0.20	0.20	3.00	0.28	0.14	7.99
Lepidium lasiocarpum	Peppergrass	N									0.52	0.18	0.06	0.14	1.16	1.32	0.04								0.48
Lepidium sp.	Peppergrass	N																							0.38
Lessingia lemmonii ramulosissima	N/A	N																							0.77
Linanthus aureus	N/A	N																							0.83
Linanthus dichotomus	Evening snow	N																							0.26
Linanthus parryae	N/A	N					1.72	1.08																	0.91
Linanthus sp.	N/A	N								0.04					0.80	2.52									1.12

Scientific Name	Common Name	Status*	Creosote Bush Scrub Transects																						
			27A	27B	28A	28B	29A	29B	32A	32B	33A	33B	34A	34B	35A	35B	39A	39B	47A	47B	49A	49B	50A	50B	Mean
Loeselliastrum matthewsii	N/A	N																							0.18
Lupinus odoratus	Lupine	N																	0.04				0.28		0.16
Lygodesmia exigua	N/A	N																							0.48
Malacothrix coulteri	Snake's head	N																		0.08			0.02		0.13
Malacothrix glabrata	Desert dandelion	N								0.26												1.18	0.04		0.37
Mentzelia albicaulis	Blazing star	N																		0.20		0.04			0.12
Mentzelia sp.	Blazing star	N																							0.02
Mirabilis bigelovii aspera	Four-o'clock	N	0.10						0.30		0.14							0.84			0.50				0.50
Monoptilon bellidiforme	Desert star	N																					0.12	0.02	0.07
Nama demissum	N/A	N																							0.09
Orthocarpus purpurascens ornatus	Owl's clover	N																							0.08
Oryzopsis hymenoides	Ricegrass	N																							0.53
Pectocarya penicillata	N/A	N	9.84	3.06	5.42	7.86			6.92	4.24	20.18	10.40	9.30	6.34	0.20	0.06				0.26	0.04	0.82		0.06	5.67
Pectocarya platycarpa	N/A	N			2.42	1.12																			0.97
Phacelia fremontii	N/A	N											0.20	0.00		0.16			0.16	0.14					0.13
Phacelia tanacetifolia	N/A	N	4.26			0.00	2.00	5.44	6.70	0.80	0.70	3.32	11.90	4.06	1.60	0.40	5.84	14.18	2.44	4.08	0.10	0.24	3.12	2.40	4.26
Phacelia sp.	N/A	N																				0.04	0.08	0.10	0.07
Plagiobothrys canescens	N/A	N																	0.02						0.02
Plagiobothrys sp.	N/A	N																					0.06		0.06
Poa secunda	Nevada bluegrass	N			1.40					0.10					0.28										4.36
Salvia carduacea	Thistle sage	N																				0.36			0.36
Schismus barbatus	N/A	I	41.94	43.20	28.52	45.70	28.24	20.44	22.94	16.30	8.20	13.66	18.50	8.58	43.90	38.14	34.70	13.02	5.14	9.46	23.88	20.22	6.02	5.18	22.11
Sitanion hystrix	Squirreltail	N			0.30	0.00	0.86					0.60													0.41
Stephanomeria parryi	N/A	N																							0.02
Stipa speciosa	Needlegrass	N			3.50	0.00																			1.75
Streptanthella longirostris	N/A	N					1.10		0.06			0.04	0.36	0.00	0.80			0.10	0.68	0.30	0.32		1.36	1.28	0.43
Syntrichopappus fremontii	N/A	N																				0.02			0.02
Trifolium gracilentum	N/A	N																							0.04
Tropidocarpum gracile	N/A	N			0.50						0.04				0.52	0.16									0.92
Xylorhiza tortifolia	Desert aster	N						3.70											0.08	3.28					1.77
Unknown annual composite	Family Asteraceae	N																		0.06					0.06
Unknown crucifer	Family Brassicaceae	N																							0.08
Unknown dicot forb	Class Dicotyledonae	N							0.04																0.04
Unknown monocot forb	Class Monocotyledonae	N																							0.10
Unknown polemone	Family Polemoniaceae	N																	0.16	0.24			0.44	0.20	0.26
Shrub Layer																									
Acamptopappus sphaerocephalus	Goldenhead	N			0.90				1.84	3.40															2.37
Ambrosia dumosa	Burro-weed	N			2.28			1.98			0.00			3.04	0.90			1.20	0.90	4.76	1.72		1.04	4.94	1.82
Atriplex polycarpa	Saltbush	N															5.54	2.40	1.56	2.34		1.18			2.45
Eurotia lanata	N/A	N				1.30				1.50															2.83
Ephedra nevadensis	Mormon tea	N	1.60	2.90				0.72	3.80	2.20	1.70				1.82	2.50					0.80				2.19
Eriogonum fasciculatum polifolium	California buckwheat	N			0.30				0.80		2.38	3.36		0.92											1.58
Grayia spinosa	Hop-sage	N					2.16		1.50												0.40				1.53
Haplopappus cooperi	N/A	N			7.68			0.74		0.20				0.90				0.94			0.42				2.19
Hymenoclea salsola	N/A	N					1.00	3.10	2.20		2.50			1.20								0.56			2.40
Larrea divaricata tridentata	Creosote bush	N	21.66	19.54	17.10	20.84	15.70	11.76	18.70	17.84	25.84	23.24	24.18	16.26	15.64	11.60	14.68	13.90	9.10	5.80	2.88	3.90	12.36	9.70	15.85
Lycium andersonii	Box-thorn	N	2.94	0.00				0.24	4.50	2.90				0.70	2.30					0.24					1.84
Lycium cooperi	Box-thorn	N																							0.70
Tetradymia axillaris	N/A	N					1.86			1.64															1.75
Tetradymia stenolepis	N/A	N						5.44	0.06			4.90		2.24											2.06

Scientific Name	Common Name	Status*	Creosote Bush Scrub Transects																					
			27A	27B	28A	28B	29A	29B	32A	32B	33A	33B	34A	34B	35A	35B	39A	39B	47A	47B	49A	49B	50A	50B	Mean
Bare Ground			4.28	5.08	11.78	8.40	5.18	12.08	6.02	5.12	4.92	3.48	2.58	8.54	5.80	3.42	3.26	4.74	62.16	29.16	56.48	56.84	67.28	63.34	18.44
Litter			9.40	8.78	15.64	13.86	6.36	5.70	6.70	7.94	13.56	9.84	8.34	8.50	6.68	5.78	8.06	5.36	4.72	3.36	3.96	5.70	7.34	5.70	8.65
Rock			12.74	12.82	6.12	10.04	27.38	29.72	25.18	16.04	14.28	14.40	12.80	17.10	22.06	21.26	16.42	23.18	9.58	36.04	6.06	2.34	0.20	3.74	14.26
Total Terrestrial Layer			151.70	118.00	113.78	104.12	92.36	70.72	84.62	97.46	111.40	121.06	171.94	118.40	99.60	132.84	117.90	103.50	26.14	32.94	40.86	52.58	31.70	32.02	93.68
Total Shrub Layer			26.20	22.44	28.26	22.14	20.72	23.98	33.40	29.68	32.42	31.50	24.18	25.26	20.66	14.10	20.22	18.44	11.56	13.14	6.22	5.64	13.40	14.64	22.29
Total Tree Canopy Layer			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Overlay Layer			177.90	140.44	142.04	126.26	113.08	94.70	118.02	127.14	143.82	152.56	196.12	143.66	120.26	146.94	138.12	121.94	37.70	46.08	47.08	58.22	45.10	46.66	115.98
Total Projective Cover			73.58	73.32	66.46	67.70	61.08	52.50	62.10	70.90	67.24	72.28	76.28	65.86	65.46	69.54	72.26	66.72	23.54	31.44	33.50	35.12	25.18	27.22	58.66
Mean Bare Ground			4.68		10.09		8.63		5.57		4.20		5.56		4.61		4.00		45.66		56.66		65.31		
Mean Litter			9.09		14.75		6.03		7.32		11.70		8.42		6.23		6.71		4.04		4.83		6.52		
Mean Rock			12.78		8.08		28.55		20.61		14.34		14.95		21.66		19.80		22.81		4.20		1.97		
Mean Terrestrial Layer			134.85		108.95		81.54		91.04		116.23		145.17		116.22		110.70		29.54		46.72		31.86		
Mean Shrub Layer			24.32		25.20		22.35		31.54		31.96		24.72		17.38		19.33		12.35		5.93		14.02		
Mean Tree Canopy Layer			0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		
Mean Overlay Layer			159.17		134.15		103.89		122.58		148.19		169.89		133.60		130.03		41.89		52.65		45.88		
Mean Projective Cover			73.45		67.08		56.79		66.50		69.76		71.07		67.50		69.49		27.49		34.31		26.20		

Notes:
* I = Introduced, N = Native, N/A = Not Applicable, no common name in Munz

Table A-2c
Vegetation Data Summary, Edwards AFB
Creosote Bush Scrub, Mean Heights of Dominant Shrubs

Scientific Name	Common Name	Status*	Creosote Bush Scrub Transects																					
			3A	3B	6A	6B	9A	9B	13A	13B	16A	16B	18A	18B	19A	19B	20A	20B	21A	21B	22A	22B	23A	23B
Acamptopappus sphaerocephalus	Goldenhead	N	45.00						45.00	49.33	56.33	48.67	46.33		56.33	44.67		53.67	64.00	63.33	43.33	42.33	41.67	
Ambrosia dumosa	Burro-weed	N	59.00	50.33	46.67	39.00	49.00	42.67	61.33	61.67	54.00	50.33	42.33	44.67	53.00		54.00	57.67	54.33	53.33	52.00	51.67		44.33
Atriplex polycarpa	Saltbush	N			88.33	71.00																		
Eurotia lanata	N/A	N							82.67	69.00		60.33		61.67	66.00	67.33							47.33	
Chrysothamnus teretifolius	Rabbit-brush	N																		70.00				
Eriogonum fasciculatum polifolium	California buckwheat	N							61.67		57.67							58.00	56.33	58.33		56.00		46.67
Ephedra nevadensis	Mormon tea	N							57.67	58.00					70.33	70.67			64.67	59.00	66.67	68.67		68.33
Grayia spinosa	Hop-sage	N							64.00	71.33		84.00							86.67					58.67
Haplopappus cooperi	N/A	N							31.33	34.67	38.67	36.67			38.67	34.00	43.33	45.67	53.33	50.33	39.67	38.33	42.00	46.00
Hymenoclea salsola	N/A	N							63.67	84.33	83.33				71.67		77.33	82.67	70.00	78.00		72.33		59.00
Larrea divaricata tridentata	Creosote bush	N	171.33	105.00	138.33	167.33	225.00	177.33	186.00	268.33	182.00	159.33	154.33	160.67	188.67	170.00	187.00	198.33	192.33	230.67	176.67	234.00	160.00	155.67
Lycium andersonii	Box-thorn	N													54.00		52.00	52.00	54.33	69.67	49.33	65.67	49.00	70.00
Lycium cooperi	Box-thorn	N		99.67					103.33															
Tetradymia axillaris	N/A	N																	98.00					
Tetradymia stenolepis	N/A	N					64.00	63.00	74.33	78.33										71.00		71.67	55.67	66.67

Notes:

N = Native, N/A = Not Applicable, no common name in Munz

Table A-2c, Page 2 of 2

Scientific Name	Common Name	Status*	Creosote Bush Scrub																					
			27A	27B	28A	28B	29A	29B	32A	32B	33A	33B	34A	34B	35A	35B	39A	39B	47A	47B	49A	49B	50A	50B
Acamptopappus sphaerocephalus	Goldenhead	N		58.67	46.00	51.67	45.33	43.67	61.00	56.67														
Ambrosia dumosa	Burro-weed	N	50.67	63.67	56.00	45.33	55.00	48.33		63.67	53.33	49.00	53.33	59.33	49.33	52.00	51.00	56.00	42.67	47.67	37.67		48.00	48.67
Atriplex polycarpa	Saltbush	N															106.67	123.33	54.33	67.67		104.67		
Eurotia lanata	N/A	N				76.33		65.00	68.67	62.00														
Chrysothamnus teretifolius	Rabbit-brush	N																						
Eriogonum fasciculatum polifolium	California buckwheat	N			53.33	55.67			53.33		63.00	57.67		56.33	61.00									
Ephedra nevadensis	Mormon tea	N	63.33	65.00		75.33		71.67	64.13	72.67	60.67	80.33			62.00	77.00					53.67		57.33	
Grayia spinosa	Hop-sage	N					92.00	89.67	86.67															
Haplopappus cooperi	N/A	N		38.67	43.00			42.00			41.67			45.33	34.67	51.67	44.33	47.67						
Hymenoclea salsola	N/A	N		99.00			72.00	64.67	69.67		62.33	69.67		65.00				82.67				58.67		
Larrea divaricata tridentata	Creosote bush	N	185.33	202.33	186.67	196.33	198.33	165.00	197.33	235.00	205.00	195.33	185.00	181.00	154.00	188.33	187.67	249.00	179.33	185.00	145.00	186.00	199.67	166.67
Lycium andersonii	Box-thorn	N	61.67	63.33		54.33	52.33	52.00	68.67	62.67					58.00						37.00			63.67
Lycium cooperi	Box-thorn	N																						
Tetradymia axillaris	N/A	N																						
Tetradymia stenolepis	N/A	N		65.33				70.00	85.33	84.67	76.00	80.33	86.33	63.00	73.00		89.33	91.67						

Notes:

N = Native, N/A = Not Applicable, no common name in Munz

Table A-3a
Vegetation Data Summary, Edwards AFB
Halophytic Phase Saltbush Scrub, Relative Abundance

Scientific Name	Common Name	Status*	Halophytic Phase Saltbush Scrub Transects																									
			24A	24B	41A	41B	42A	42B	43A	43B	45A	45B	48A	48B	51A	51B	52A	52B	54A	54B	55A	55B	57A	57B	58A	58B	59A	59B
Terrestrial Surface Layer																												
Amsinckia tessellata	Fiddleneck	N	VR	VR	C	C	VR	VR	VR		C			VR			VR	R	VR	VR	R	VR	VR		VR	VR	R	VR
Astragalus didymocarpus	Locoweed	N						VR																				
Astragalus lentiginosus	Locoweed	N						VR													VR							
Astragalus sp.	Locoweed	N				VR																						
Atriplex phyllostegia	Arrowscale	N	R	C			VR		R	VR	R	R	VR	C		C	R	VR	VR		VR	R	C	C	VR	C		
Bromus rubens	Foxtail chess	I	VR	R	R		C	C	C	C	C	A	R	C	C	C	C	C	C	VA	C	C	R	VR	R	C	A	C
Bromus tectorum	Cheatgrass	I		R			VR	VR	A	A	C	A	C	C	C	C	C	C	R		C	C	C	VR	C	C	R	R
Bromus trinii	Bromegrass	I													VR						VR			VR				
Calochortus striatus	Mariposa lily	N					VR		VR										VR									
Calyptridium monandrum	N/A	N	VR																									
Camissonia boothii desertorum	N/A	N	VR	VR					VR		VR	VR													VR			
Camissonia campestris	N/A	N						VR				VR						VR		VR			VR	VR	VR			
Camissonia sp.	N/A	N			R	R											VR											
Chaenactis fremontii	N/A	N			VR														VR									
Chaenactis stevioides	N/A	N	VR	R																								
Chaenactis xantiana	N/A	N								VR																		
Chorizanthe brevicornu brevicornu	N/A	N																	VR									
Chorizanthe rigida	N/A	N	VR	VR																								
Chorizanthe spinosa	N/A	N					VR	VR								VR												
Cleomella obtusifolia	Stinkweed	N	VR	VR						VR								VR			VR	VR	VR					
Coreopsis bigelovii	Tickseed	N			R																							
Croton californicus mohavensis	Croton	N			C																							
Cryptantha dumetorum	N/A	N	VR	VR	C	R					VR	VR		VR													VR	VR
Cryptantha micrantha micrantha	N/A	N	R	VR		VR					VR									VR	VR						VR	
Cryptantha pterocarya	N/A	N		R	C	R																					VR	
Cryptantha sp.	N/A	N															VR	VR										
Delphinium parishii parishii	N/A	N													VR													
Descurainia pinnata glabra	Tansy-mustard	N												VR								VR					VR	
Distichlis spicata	Saltgrass	N						VR	R		R	R	VR	VR			R	VR			R	VR	C	R				
Elymus cinereus	Ryegrass	N							VR	VR																		
Eremalche sp.	N/A	N																		VR								
Eriastrum eremicum	N/A	N																		VR							R	R
Eriastrum sapphirinum ambiguum	N/A	N					VR	VR							R	VR					VR	VR	VR	VR	VR			
Eriogonum gracillimum	Wild buckwheat	N						VR							VR		VR						VR	VR	R	R		
Eriogonum pusillum	Wild buckwheat	N	R																	VR								
Eriogonum sp.	Wild buckwheat	N									VR																	
Erodium cicutarium	Filaree	I			C	R	C	R	VR	VR	VR	VR			A	C			VR	VR	VR		VR	VR	R	VR	R	R
Festuca microstachys	Fescue	N								VR	VR	VR	VR	R	VR		VR				VR	VR	C	VR	VR	R	VR	
Festuca octoflora	Six-weeks fescue	N		VR											VR		VR			VR	VR	VR	VR	VR	VR	R	VR	
Filago depressa	Filago	N	R	VR						VR			VR		VR	VR			VR	VR			VR		VR	VR		
Oxytheca luteola	N/A	N									VR		VR	VR			VR				VR	VR	VR		VR	R		
Gilia cana	Gilia	N						VR											VR	VR								
Gilia latiflora	Gilia	N	VR				VR	VR																				
Gilia minor	Gilia	N					VR			VR					VR	VR									VR	VR		
Gilia sp.	Gilia	N								VR																		
Gutierrezia microcephala	Matchweed	N						VR		R							R										VR	VR
Hordeum leporinum	Barley	I	R	C			VR	R			VR		VR	VR	VR	VR	R	R	R	VR	VR	C	VR	VR	R	VR	VR	C
Juncus bufonius	Toad rush	N					R							VR										VR				
Kochia californica	N/A	N																	VR	C			VR	A				VR
Lasthenia glabrata var. calirfornica	Goldenfield	N			VR	VR	A	A					VR	VR	A	VA		VR	C	C		VR			VR	VR	VR	VR
Lepidium flavum flavum	Peppergrass	N	R	R			R	VR		VR	VR		C	R		VR	VR	VR	R		VR	R	C	R	C	C		
Lepidium lasiocarpum	Peppergrass	N					VR	VR							VR													
Lessingia lemmonii ramulosissima	N/A	N					VR	VR																				
Linanthus aureus	N/A	N						VR		VR																		
Loeselliastrum matthewsii	N/A	N						VR			VR							VR										
Lupinus odoratus	Lupine	N					VR													VR								
Lupinus sp.	Lupine	N				VR																						
Lygodesmia exigua	N/A	N		VR																								
Malacothrix coulteri	Snake's head	N	VR	VR			VR	VR									VR		VR			VR	VR		VR	VR		
Malacothrix glabrata	Desert dandelion	N	R	VR	C	R	VR	VR		VR	R	R	VR				VR	VR	VR	VR			VR		VR	VR	VR	VR
Matricaria occidentalis	Pineappleweed	N																					VR	VR				

Table A-3a, Page 2 of 3

Scientific Name	Common Name	Status*	Halophytic Phase Saltbush Scrub Transects																									
			24A	24B	41A	41B	42A	42B	43A	43B	45A	45B	48A	48B	51A	51B	52A	52B	54A	54B	55A	55B	57A	57B	58A	58B	59A	59B
Mentzelia albicaulis	Blazing star	N	VR						VR																			
Mirabilis bigelovii aspera	Four-o'clock	N						VR																				
Monolepis nuttalliana	N/A	N								R												VR	VR	C	VR	VR		
Nitrophila occidentalis	N/A	N											VR								VR	C					R	R
Orthocarpus purpurascens ornatus	Owl's clover	N					VR													VR								
Oryzopsis hymenoides	Ricegrass	N	VR	VR			VR	VR			VR	VR	VR				VR	VR		VR	VR	VR	VR				VR	
Pectocarya penicillata	N/A	N			VA	VA	VR					VR	VR		VR		VR			VR	VR		VR	VR	VR	R	VR	
Pectocarya platycarpa	N/A	N						VR																				
Phacelia tanacetifolia	N/A	N													VR													
Phacelia sp.	N/A	N																				VR	VR	VR				
Poa secunda	Nevada bluegrass	N					VR	VR							VR													
Psathyrotes ramosissima	N/A	N							VR	VR																		
Rafinesquia neomexicana	N/A	N		VR																								
Rumex hymenosepalus	Wild rhubarb	N									VR	VR																
Schismus barbatus	N/A	I	C	A	VA	VA	R	C	C	R	C	C	C	C	R	C	C	A	C	C	C	C	C	C	C	C	C	C
Setaria lutescens	Bristlegrass	I																					VR					
Sisymbrium orientale	N/A	I																			VR							
Sitanion hystrix	Squirreltail	N																										VR
Spergularia marina	Sand spurrey	N												VR														
Sporobolus airoides	Dropseed	N							VR	VR	C	C	VR	VR			VR	VR			R		VR	VR	R	R		
Stephanomeria parryi	N/A	N	R	VR																								
Stephanomeria pauciflora	N/A	N							VR	VR	VR						VR	R				VR	VR	VR				VR
Stephanomeria sp.	N/A	N																	VR									
Stillingia paucidentata	N/A	N				VR															VR							
Stipa speciosa	Needlegrass	N						VR																				
Streptanthella longirostris	N/A	N						VR																				
Tamarix chinensis	Tamarisk	I																						VR				
Tiquilia plicata	N/A	N			VR	VR																						
Unknown caryophyll	Family Caryophyllaceae	N					VR																					
Unknown dicot forb	Class Dicotyledonae	N							VR				VR	VR														
Shrub Layer																												
Acamptopappus sphaerocephalus	Goldenhead	N									R	VR					VR				R	R						
Ambrosia dumosa	Burro-weed	N		C				VR													R	R						
Artemisia tridentata parishii	Basin sagebrush	N															VR	VR		R							VR	C
Artemisia spinescens	Basin sagebrush	N	C	C						C		VR									VR	VR						
Atriplex canescens canescens	Saltbush	N			C	C			VR		VR	C	VR	R			VR	A		C							C	R
Atriplex confertifolia	Saltbush	N					VR	VR	R	C			VR		VR	VR	C	C	R	R	C	C	C	VR	R	C	C	
Atriplex lentiformis	Saltbush	N					VR	VR	R	R	R	R	R	C			C	C					VR			VR	C	C
Atriplex spinifera	Saltbush	N	A	C			A	A	A	C					A	A	C	R	A	C	C	R	R	VR	C	C	R	R
Eurotia lanata	N/A	N									VR	R									VR	VR						
Chrysothamnus nauseosus mohavensis	Rabbit-brush	N								VR	VR						R	VR						VR	VR	VR		
Ephedra nevadensis	Mormon tea	N					VR	VR			VR	VR		VR	C				VR		R	VR					VR	R
Forestiera neomexicana	Desert olive	N							VR																			
Grayia spinosa	Hop-sage	N						VR	VR			VR			R				VR			VR						
Haplopappus acradenius acradenius	N/A	N								R	R			VR			VR	VR										
Hymenoclea salsola	N/A	N				R		VR																				
Lepidium fremontii	Peppergrass	N		C					R	R			VR				R	VR	R		R	R						R
Lycium andersonii	Box-thorn	N		R			VR	VR				R			C	VR			VR	VR	R		VR					
Lycium cooperi	Box-thorn	N					VR	VR																				
Opuntia echinocarpa echinocarpa	Golden cholla	N						VR								VR												
Suaeda moquinii	Seep-weed	N	C	C										VR		VR	C	VR	R	R	VR	C	C	VR	VR	R	VR	VR
Tetradymia glabrata	N/A	N	VR	VR						R																		VR
Tetradymia stenolepis	N/A	N				C					VR	VR					VR	R					VR					

Table A-3a, Page 3 of 3

Scientific Name	Common Name	Status*	Halophytic Phase Saltbush Scrub Transects																									
			24A	24B	41A	41B	42A	42B	43A	43B	45A	45B	48A	48B	51A	51B	52A	52B	54A	54B	55A	55B	57A	57B	58A	58B	59A	59B
Tree Canopy Layer																												
Prosopis glandulosa torreyana		N															VR	VR									VR	
Yucca brevifolia		N					VR	VR	VR	VR	VR	VR	VR	VR	VR	VR	VR			VR	VR		VR	VR		VR	VR	VR
Species Richness			25.00	29.00	15.00	17.00	32.00	41.00	23.00	29.00	30.00	25.00	22.00	23.00	24.00	18.00	34.00	28.00	25.00	28.00	34.00	31.00	35.00	28.00	27.00	26.00	28.00	24.00
Total Percent Native			88.00	86.21	80.00	88.24	84.38	87.80	82.61	86.21	83.33	84.00	81.82	82.61	75.00	72.22	88.24	85.71	80.00	82.14	79.41	87.10	82.86	75.00	81.48	80.77	82.14	79.17
Mean Species Richness			27.00		16.00		36.50		26.00		27.50		22.50		21.00		31.00		26.50		32.50		31.50		26.50		26.00	
Mean Percent Native			87.10		84.12		86.09		84.41		83.67		82.21		73.61		86.97		81.07		83.25		78.93		81.13		80.65	

Scientific Name	Mean
Species Richness	26.96
Total Percent Native	82.56

Notes:

* N = Native, I = Introduced, N/A = Not Applicable, no common name in Munz

Table A-4b
Vegetation Data Summary, Edwards AFB
Arid Phase Saltbush Scrub, Percent Cover

Scientific Name	Common Name	Status*	Arid Phase Saltbush Scrub Transects																				
			1A	1B	2A	2B	8A	8B	10A	10B	11A	11B	12A	12B	14A	14B	15A	15B	40A	40B	44A	44B	Mean
Terrestrial Surface Layer																							
Amsinckia tessellata	Fiddleneck	N	1.78	2.22	0.06	0.30	1.50	0.80					0.18	1.06	1.66	0.66	0.44	0.78		0.44	1.14	0.08	0.87
Astragalus didymocarpus	Locoweed	N	3.24	7.60											0.06		0.20						2.78
Bromus rubens	Foxtail chess	I	7.40	6.26	8.86	0.92	22.10	22.88	2.40	4.48	1.84	1.76	30.72	24.56	5.32	22.58	11.06	5.42	11.24	12.08	4.10	4.88	10.54
Bromus tectorum	Cheatgrass	I		0.54			2.38	0.80	1.14		0.08	0.10	5.12	8.84	5.06	0.10			2.46	0.70			2.28
Bromus trinii	Bromegrass	I							0.08	0.04				0.44									0.19
Calyptridium monandrum	N/A	N			0.02	0.06			0.20		0.14	0.36											0.16
Camissonia boothii desertorum	N/A	N				0.08			0.16	0.04													0.09
Camissonia campestris	N/A	N			0.16	0.10		0.66			0.10		0.72	0.30			0.04	0.08					0.27
Camissonia sp.	N/A	N																			1.08	0.16	0.62
Centrostegia thurberi	N/A	N					0.44																0.44
Chaenactis fremontii	N/A	N				0.12					1.26	4.58					0.36	0.34					1.33
Chaenactis stevioides	N/A	N							0.36	1.32	2.22	1.88											1.45
Chaenactis xantiana	N/A	N							0.96	0.26													0.61
Chaenactis sp.	N/A	N																			1.42	0.78	1.10
Chorizanthe brevicornu brevicornu	N/A	N		1.48	0.04		0.96								1.00		0.06	0.04		0.34			0.56
Chorizanthe perfoliata	N/A	N												0.16									0.16
Chorizanthe spinosa	N/A	N						0.16															0.16
Chorizanthe sp.	N/A	N														3.98							3.98
Coreopsis bigelovii	Tickseed	N						3.52	0.12														1.82
Coreopsis calliopsidea	Tickseed	N						1.40					0.20										0.80
Cryptantha dumetorum	N/A	N								0.82	0.66	0.30	2.00	1.20									1.00
Cryptantha micrantha micrantha	N/A	N	0.06	0.06			0.28	0.10	0.14			0.30	1.30	0.74							2.22	0.04	0.52
Cryptantha pterocarya	N/A	N							0.34	0.02		0.56									0.66	0.08	0.33
Cryptantha sp.	N/A	N							0.30														0.30
Cymopterus deserticola	N/A	N																			0.08		0.08
Delphinium parishii parishii	N/A	N			0.26																		0.26
Descurainia pinnata glabra	Tansy-mustard	N											0.10	0.20			0.10	0.20			0.90	0.44	0.32
Eremocarpus setigerus	Doveweed	N						0.34											0.10				0.22
Eriastrum eremicum	N/A	N	0.36	0.14																			0.25
Eriastrum sapphirinum ambiguum	N/A	N	0.14		0.10	0.08	0.30	0.10	0.68	0.70	0.08	0.08	0.12	1.10					0.88	0.72			0.39
Eriogonum gracillimum	Wild buckwheat	N	6.72	5.00			0.84	4.06	0.02	0.64			0.24	1.20			0.12	0.32	0.26	0.30			1.64
Eriogonum pusillum	Wild buckwheat	N				0.12	0.30	0.42			0.58	0.26	1.14	0.62	1.64	0.92							0.67
Eriogonum trichopes	Wild buckwheat	N						4.44															4.44
Eriophyllum pringlei	N/A	N														0.98					1.90		1.44
Eriophyllum wallacei	N/A	N					0.06																0.06
Erodium cicutarium	Filaree	I	44.30	47.40			42.00	36.90	0.06	0.86		5.10	13.70	19.60	30.98	27.84	8.68	23.50	51.94	48.84	9.80	11.42	24.88
Eschscholzia minutiflora minutiflora	California poppy	N										0.24						0.06			0.20		0.17
Euphorbia albomarginata	Rattlesnake weed	N					0.26	0.82															0.54
Festuca microstachys	Fescue	N		0.50			2.58							1.00			0.06						1.04
Festuca octoflora	Six-weeks fescue	N		0.46			1.36		0.24				0.20	0.48		0.06	0.26				1.28	0.06	0.49
Filago depressa	Filago	N	0.04	0.42		0.04	0.18	0.64	2.82		3.64	2.26	0.94	0.76	0.16	0.66			0.38	0.68	0.82	0.04	0.91
Gilia latiflora	Gilia	N					0.70	1.50	0.24	2.34			0.06				0.18	0.32					0.76
Gilia micromeria	Gilia	N				0.08					2.54	0.32					0.94						0.97
Gilia minor	Gilia	N	8.72	8.40	0.06		11.44	1.64					0.18	0.36	4.14	5.20		4.12	0.40	0.76	0.54	0.74	3.34
Gilia sp.	Gilia	N																			1.06		1.06
Gutierrezia microcephala	Matchweed	N						0.74															0.74
Hordeum leporinum	Barley	I							2.36	0.50													1.43

Table A-4b, Page 2 of 3

Scientific Name	Common Name	Status*	Arid Phase Saltbush Scrub Transects																				Mean
			1A	1B	2A	2B	8A	8B	10A	10B	11A	11B	12A	12B	14A	14B	15A	15B	40A	40B	44A	44B	
Lactuca sativa	Lettuce	N												0.10									0.10
Lasthenia californica	N/A	N	13.46	11.02			10.22	9.88	0.38	2.78			0.14		19.20	15.00	29.36	7.00	25.84	34.50	0.76		12.82
Lepidium flavum flavum	Peppergrass	N							0.22	1.92	0.94	0.04											0.78
Lepidium lasiocarpum	Peppergrass	N	0.10																				0.10
Lepidium sp.	Peppergrass	N													0.12	0.60							0.36
Lessingia lemmonii ramulosissima	N/A	N					0.04	0.48															0.26
Linanthus parryae	N/A	N													0.58	3.14					0.48		1.40
Loeselliastrum matthewsii	N/A	N												0.16									0.16
Lupinus bicolor	Lupine	N	0.94	0.38																			0.66
Lupinus odoratus	Lupine	N																1.00	2.18		0.24		1.14
Lygodesmia exigua	N/A	N						2.36					0.30			0.06							0.91
Malacothrix coulteri	Snake's head	N						0.36	0.14	1.02	1.66	0.16						1.02			0.24	0.04	0.58
Malacothrix glabrata	Desert dandelion	N	0.08	0.10	0.04	0.60	0.20	0.50	3.18	0.20	0.30	0.12	0.46	2.38			1.58	4.04			0.40	0.68	0.93
Mentzelia albicaulis	Blazing star	N		0.50		0.06															0.04		0.20
Mirabilis bigelovii aspera	Four-o'clock	N																0.40		0.82		0.30	0.51
Nitrophila occidentalis	N/A	N							2.46														2.46
Oryzopsis hymenoides	Ricegrass	N			0.80	2.94		1.16					0.40	0.00									1.06
Pectocarya penicillata	N/A	N					2.74	0.14	0.10	0.36			0.08			0.06		2.26					0.82
Pectocarya sp.	N/A	N																			0.30		0.30
Phacelia fremontii	N/A	N							0.18		0.22												0.20
Phacelia tanacetifolia	N/A	N				0.80	1.60	1.90			0.40		0.30	2.34				1.30	0.20	4.48			1.48
Phacelia sp.	N/A	N							0.28	0.44		0.08										0.10	0.23
Plagiobothrys canescens	N/A	N							0.08														0.08
Rafinesquia neomexicana	N/A	N			0.04						0.80					0.20							0.35
Schismus barbatus	N/A	I	8.70	14.44	15.84	30.76	15.00	21.16	16.34	26.22	21.48	23.56	15.74	16.04	7.88	10.78	13.78	22.38	1.42	11.30	0.88	0.98	14.73
Sitanion hystrix	Squirreltail	N						0.20															0.20
Sphaeralcea ambigua	Desert mallow	N				1.34																0.12	0.73
Stephanomeria parryi	N/A	N															0.38	0.20					0.29
Stephanomeria pauciflora	N/A	N											0.74	0.60									0.67
Stillingia paucidentata	N/A	N			0.24	2.10																	1.17
Stipa speciosa	Needlegrass	N						0.70								1.50							1.10
Streptanthella longirostris	N/A	N	0.20		0.10			1.70		0.94	0.12	0.12		0.16			0.24	2.90			0.04	0.40	0.63
Tropidocarpum gracile	N/A	N																0.50					0.50
Unknown polemone	Family Polemoniaceae	N																				0.08	0.08

Scientific Name	Common Name	Status*	Arid Phase Saltbush Scrub Transects																				
			1A	1B	2A	2B	8A	8B	10A	10B	11A	11B	12A	12B	14A	14B	15A	15B	40A	40B	44A	44B	Mean
Shrub Layer																							
Acamptopappus sphaerocephalus	Goldenhead	N	1.20	1.18			1.96	2.20					1.80	4.00						2.40	0.50		1.91
Ambrosia dumosa	Burro-weed	N	4.56	1.36	9.40	1.74	1.54	1.10	3.58		2.60	4.74		0.20	0.50	2.60	3.92	2.84	0.90	1.00		3.06	2.68
Artemisia spinescens	Basin sagebrush	N							2.00				2.10								1.32	1.48	1.73
Atriplex confertifolia	Saltbush	N											2.18	1.50									1.84
Atriplex lentiformis	Saltbush	N							1.30														1.30
Atriplex polycarpa	Saltbush	N	2.20	5.06	2.66	1.88	8.22	12.98	9.16	17.94	10.44	5.30	2.34	4.90	2.80	8.66	13.70	5.00	13.20	4.02	2.02	1.94	6.72
Atriplex spinifera	Saltbush	N						2.94	2.70														2.82
Eurotia lanata	N/A	N					1.00	0.80						2.20	0.04							2.30	1.27
Ephedra nevadensis	Mormon tea	N				3.04							7.50	4.60									5.05
Grayia spinosa	Hop-sage	N		1.30		0.60	1.50						2.30		3.00						0.60	0.80	1.44
Haplopappus cooperi	N/A	N		2.26			0.92	1.92				0.48			1.10	0.10						0.66	1.06
Hymenoclea salsola	N/A	N		0.64		0.90		1.74					1.14	2.30		0.60				2.20	2.72		1.53
Lepidium fremontii	Peppergrass	N			1.18						2.34		1.74	0.70									1.49
Lycium andersonii	Box-thorn	N		0.60		1.30					1.80				0.64	2.50	1.00	2.30	0.32	1.50	1.30	0.40	1.24
Lycium cooperi	Box-thorn	N										2.20											2.20
Opuntia echinocarpa echinocarpa	Golden cholla	N																			0.30		0.30
Tetradymia axillaris	N/A	N														1.50							1.50
Tetradymia stenolepis	N/A	N					1.84								0.80								1.32
Bare Ground			12.70	7.52	58.62	49.48	12.16	21.88	41.02	46.60	49.92	52.88	21.40	23.08	17.22	12.34	46.64	45.06	20.70	17.14	66.04	69.36	34.59
Litter			8.62	10.32	7.14	7.52	10.22	12.68	4.30	6.58	7.52	8.10	14.78	15.76	7.46	6.82	4.22	3.80	7.98	8.20	6.88	7.86	8.34
Rock			18.64	19.96	0.00	0.00	15.00	0.74	14.46	0.36	0.00	0.20	13.10	10.24	27.28	25.46	0.04	0.00	7.36	13.58	0.00	0.00	8.32
Total Terrestrial Layer			96.24	106.92	26.62	40.50	117.48	122.46	35.98	45.90	39.06	42.18	75.08	84.40	77.80	94.32	67.84	78.18	97.30	115.96	30.58	21.42	70.81
Total Shrub Layer			7.96	12.40	13.24	9.46	16.98	23.68	18.74	17.94	17.18	12.72	21.10	20.40	8.88	15.96	18.62	10.14	14.42	11.12	8.76	10.64	14.52
Total Tree Canopy Layer			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Overlay Layer			104.20	119.32	39.86	49.96	134.46	146.14	54.72	63.84	56.24	54.90	96.18	104.80	86.68	110.28	86.46	88.32	111.72	127.08	39.34	32.06	85.33
Total Projective Cover			60.04	62.20	34.24	43.00	62.62	64.70	40.22	46.46	42.56	38.82	50.72	50.92	48.04	55.38	49.10	51.14	63.96	61.08	27.08	22.78	48.75
Mean Bare Ground			10.11		54.05		17.02		43.81		51.40		22.24		14.78		45.85		18.92		67.70		
Mean Litter			9.47		7.33		11.45		5.44		7.81		15.27		7.14		4.01		8.09		7.37		
Mean Rock			19.30		0.00		7.87		7.41		0.10		11.67		26.37		0.02		10.47		0.00		
Mean Terrestrial Layer			101.58		33.56		119.97		40.94		40.62		79.74		86.06		73.01		106.63		26.00		
Mean Shrub Layer			10.18		11.35		20.33		18.34		14.95		20.75		12.42		14.38		12.77		9.70		
Mean Tree Canopy Layer			0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		
Mean Overlay Layer			111.76		44.91		140.30		59.28		55.57		100.49		98.48		87.39		119.40		35.70		
Mean Projective Cover			61.12		38.62		63.66		43.34		40.69		50.82		51.71		50.12		62.52		24.93		

Notes:

* I = Introduced, N = Native, N/A = Not Applicable, no common name in Munz

Table A-3c
Vegetation Data Summary, Edwards AFB
Halophytic Phase Saltbush Scrub, Mean Heights of Dominant Shrubs

Scientific Name	Common Name	Status*	Halophytic Phase Saltbush Scrub Transects																									
			24A	24B	41A	41B	42A	42B	43A	43B	45A	45B	48A	48B	51A	51B	52A	52B	54A	54B	55A	55B	57A	57B	58A	58B	59A	59B
Acamptopappus sphaerocephalus	Goldenhead	N									49.67											54.67						
Ambrosia dumosa	Burro-weed	N		38.67				49.33													59.00	50.33						
Artemisia spinescens	Sagebrush	N	33.33	33.33						39.67																		
Artemisia tridentata parishii	Basin Sagebrush	N																										120.00
Atriplex canescens canescens	Saltbush	N			101.67	94.33			127.67		114.00	120.67		92.33			115.00	132.67		92.67							84.67	94.33
Atriplex confertifolia	Saltbush	N					62.33	69.33	52.33	61.67	62.33		68.33	85.00		57.33	80.00		66.00		84.67	75.00	83.00	73.33	76.00	70.33	74.00	
Atriplex lentiformis	Saltbush	N							84.67			88.33	51.67	47.00			67.33	57.00					47.33	51.00			108.33	71.33
Atriplex spinifera	Saltbush	N		55.33			78.33	74.67		62.33					77.33	76.67	68.67	61.67	74.00	73.00	65.00	80.33	72.67	84.33	66.33	67.33		68.33
Eurotia lanata	N/A	N									75.33	76.33									78.67							
Chrysothamnus nauseosus mohavensis	Rabbit-brush	N															90.67	81.00										
Ephedra nevadensis	Mormon tea	N					65.33	58.33				66.67			51.00													72.67
Grayia spinosa	Hop-sage	N						69.00																				
Halopappus arcradenius acradenius	N/A	N								49.33	41.00			44.33			52.00	34.33										
Hymenoclea salsola	N/A	N			76.00	75.67																						
Lepidium fremontii	Peppergrass	N	62.00	55.00					44.00	63.33			55.00								68.00	61.67						66.00
Lycium andersonii	Box-thorn	N		36.00			46.33					67.00			69.00						69.67							
Lycium cooperi	Box-thorn	N					73.67	114.33																				
Suaeda moquinii	Seep-weed	N	70.00	78.67												50.00	47.33		59.00		45.00	51.67	48.33	41.67		49.67		
Tetradymia stenolepis	N/A	N			82.33	80.67												114.67										

Notes:

N = Native, N/A = Not Applicable, no common name in Munz

Table A-4a
Vegetation Data Summary, Edwards AFB
Arid Phase Saltbush Scrub, Relative Abundance

Scientific Name	Common Name	Status*	Arid Phase Saltbush Scrub Transects																			
			1A	1B	2A	2B	8A	8B	10A	10B	11A	11B	12A	12B	14A	14B	15A	15B	40A	40B	44A	44B
Terrestrial Surface Layer																						
Amsinckia tessellata	Fiddleneck	N	R	VR	VR	VR	R	VR			VR	VR	VR		VR	VR	R	R		VR	R	VR
Astragalus didymocarpus	Locoweed	N	R	R											VR	VR	VR					
Astragalus layneae	Locoweed	N														VR						
Astragalus lentiginosus	Locoweed	N					VR						VR	VR								
Bromus rubens	Foxtail chess	I	C	C	C	R	A	A	C	R	R	R	C	A	R	A	C	C	C	C	C	C
Bromus tectorum	Cheatgrass	I		VR			R	R	C	VR	VR	VR	R	C	R	VR			VR	R		
Bromus trinii	Bromegrass	I					VR	VR	VR	VR			VR									
Calyptridium monandrum	N/A	N			VR	VR			R	VR	VR	VR										
Camissonia boothii desertorum	N/A	N			VR	VR	VR		VR	VR		VR	VR	VR								
Camissonia campestris	N/A	N			VR	VR		R			VR	VR	VR	R			VR	VR				
Camissonia sp.	N/A	N																			C	VR
Centrostegia thurberi	N/A	N					VR															
Chaenactis fremontii	N/A	N				VR					R	C					VR	VR				
Chaenactis stevioides	N/A	N									VR											
Chaenactis xantiana	N/A	N							R	VR				VR								
Chaenactis sp.	N/A	N							VR	VR											R	R
Chorizanthe brevicornu brevicornu	N/A	N		VR	VR		VR						VR		VR	VR	VR	VR		VR		
Chorizanthe perfoliata	N/A	N											VR									
Chorizanthe spinosa	N/A	N						VR		VR				VR								
Coreopsis calliopsidea	Tickseed	N						R					VR									
Coreopsis bigelovii	Tickseed	N						R	VR													
Cryptantha dumetorum	N/A	N						VR		VR		VR	VR	R								
Cryptantha micrantha micrantha	N/A	N	VR	VR			VR		VR			VR	R	R							C	VR
Cryptantha pterocarya	N/A	N										R									R	VR
Cymopterus deserticola	N/A	N																			R	
Delphinium parishii parishii	N/A	N			VR		VR						VR	VR								
Descurainia pinnata glabra	Tansy-mustard	N					VR						VR				VR				R	R
Eremocarpus setigerus	Doveweed	N																	VR			
Eriastrum eremicum	N/A	N	VR	VR			VR	VR						VR					VR	VR		
Eriastrum sapphirinum ambiguum	N/A	N	VR		VR	VR	R	VR	R	R	VR	VR	VR	R					VR	VR		
Eriogonum gracillimum	Wild buckwheat	N	VR	C			VR	R	VR	VR			VR	R			R	VR	VR	VR		
Eriogonum pusillum	Wild buckwheat	N				VR	VR	VR			VR	VR	VR	R	VR	VR						
Eriogonum trichopes	Wild buckwheat	N						R														
Eriogonum sp.	Wild buckwheat	N									VR	VR										
Eriophyllum pringlei	N/A	N														VR					C	
Eriophyllum wallacei	N/A	N					VR	VR					VR									
Erodium cicutarium	Filaree	I	VA	VA			VA	VA		VR		R	C	A	VA	VA	C	A	VA	VA	C	C
Eschscholzia minutiflora minutiflora	California poppy	N									VR	VR						VR				
Eschscholzia sp.	California poppy	N																			VR	
Euphorbia albomarginata	Rattlesnake weed	N					VR	VR						VR								
Festuca microstachys	Fescue	N		VR			R	VR									VR					
Festuca octoflora	Six-weeks fescue	N		VR			VR		VR				VR				R				C	R
Filago depressa	Filago	N	VR	VR		VR	VR	VR	R		R	R	VR	R	VR		VR	VR	VR	VR	R	VR
Oxytheca luteola	N/A	N																				
Gilia cana	Gilia	N																				
Gilia latiflora	Gilia	N					R	R	VR	R			VR	VR			VR	C				
Gilia minor	Gilia	N	C	C	VR	VR	A	R			R	VR	VR	R	R	C			VR	VR	C	R
Gilia sp.	Gilia	N																			R	
Gutierrezia microcephala	Matchweed	N						R					VR									
Hordeum leporinum	Barley	I							R	R												

Scientific Name	Common Name	Status*	Arid Phase Saltbush Scrub Transects																			
			1A	1B	2A	2B	8A	8B	10A	10B	11A	11B	12A	12B	14A	14B	15A	15B	40A	40B	44A	44B
Kochia californica	N/A	N																				
Lasthenia glabrata var. californica	Goldenfield	N	VA	A			C	C	R	R			VR		A	VA	A	C	VA	VA	R	
Lactuca sativa	Lettuce	N												VR								
Lepidium flavum flavum	Peppergrass	N							R	R	VR	VR		VR								
Lepidium lasiocarpum	Peppergrass	N	VR												VR	VR						
Lessingia lemmonii ramulosissima	N/A	N					VR	VR						VR								
Linanthus parryae	N/A	N													VR	R					A	
Loeselliastrum matthewsii	N/A	N						VR						VR								
Lupinus odoratus	Lupine	N	VR	VR											VR	VR		VR	R	VR	VR	
Lygodesmia exigua	N/A	N						R					VR	VR								
Malacothrix coulteri	Snake's head	N						VR	R	R	R	R						R			R	VR
Malacothrix glabrata	Desert dandelion	N	VR	VR	VR	VR	VR	VR	C	VR	VR	VR	VR	R			R	C			R	R
Mentzelia albicaulis	Blazing star	N		VR		VR															VR	
Mentzelia sp.	Blazing star	N																				
Mirabilis bigelovii aspera	Four-o'clock	N		VR	VR	VR	VR	VR			VR			VR				VR	VR		VR	VR
Mirabilis bigelovii retrorsa	Four-o'clock	N																		VR		
Nitrophila occidentalis	N/A	N							R													
Oryzopsis hymenoides	Ricegrass	N			VR	R		VR			VR	VR	VR	R								
Pectocarya penicillata	N/A	N					R	VR	VR	VR	VR		VR	VR				R				
Pectocarya sp.	N/A	N																			VR	
Phacelia fremontii	N/A	N							R		VR	VR										
Phacelia tanacetifolia	N/A	N	VR			VR	R	R			VR		VR	R				R	R	R		
Phacelia sp.	N/A	N																			VR	VR
Plagiobothrys sp.	N/A	N							R													VR
Poa secunda	Nevada bluegrass	N					VR	VR					VR	R								
Psathyrotes ramosissima	N/A	N												VR								
Rafinesquia neomexicana	N/A	N			VR						R											
Salvia carduacea	Thistle sage	N					VR															
Schismus barbatus	N/A	I	C	A	C	A	A	A	C	VA		A	A	A	R	R	VA	VA	VR	C	VR	R
Sitanion hystrix	Squirreltail	N					VR	VR					VR	VR								
Sphaeralcea ambigua	Desert mallow	N				VR	VR														C	VR
Stanleya pinnata	Prince's plume	N												VR								
Stephanomeria parryi	N/A	N															R	R				
Stephanomeria pauciflora	N/A	N											VR	R								
Stillingia paucidentata	N/A	N			VR	R		VR				R										
Stipa speciosa	Needlegrass	N	VR	R			VR	VR					VR		VR	VR						
Streptanthella longirostris	N/A	N	VR		VR		VR	R	VR	R	VR	VR	VR				VR	C	VR		R	R
Syntrichopappus fremontii	N/A	N						VR														
Tropidocarpum gracile	N/A	N																R				
Unknown polemone	Family Polemoniace	N																				VR

Scientific Name	Common Name	Status*	Arid Phase Saltbush Scrub Transects																			
			1A	1B	2A	2B	8A	8B	10A	10B	11A	11B	12A	12B	14A	14B	15A	15B	40A	40B	44A	44B
Shrub Layer																						
Acamptopappus sphaerocephalus	Goldenhead	N	C	C	VR	R	C	R					R	C		R			VR	VR	R	C
Ambrosia dumosa	Burro-weed	N	A	A	A	C	R	VR	C		C	C	VR	VR	C	C	A	A	R	C	C	C
Artemisia spinescens	Basin sagebrush	N							C	VR			VR								C	C
Atriplex confertifolia	Saltbush	N											R	R								
Atriplex lentiformis	Saltbush	N							VR													
Atriplex polycarpa	Saltbush	N	C	A	C	C	C	C	A	VA	A	A	C	C	C	A	A	A	A	A	C	C
Atriplex spinifera	Saltbush	N						R	C													
Ceratoides lanata	N/A	N				VR	C	R					VR	R	VR	VR					VR	C
Chrysothamnus nauseosus mohavensis	Rabbit-brush	N											VR									
Ephedra nevadensis	Mormon tea	N				R							R	C						VR		
Eriogonum fasciculatum polifolium	California buckwhea	N																				
Grayia spinosa	Hop-sage	N	R	R		VR	R	R					R	R	C	VR	VR		VR		VR	C
Haplopappus cooperi	N/A	N	C	A			C	R				R	VR	VR	C	C			VR			
Hymenoclea salsola	N/A	N		R		R	R	C				R	VR	C					VR	R	C	
Larrea divaricata tridentata	Creosote bush	N																		VR		
Lepidium fremontii	Peppergrass	N			C	R					R	R	R	R								
Lycium andersonii	Box-thorn	N	C	R	VR	R	VR	VR	R		R	R	VR	VR	C	C	C	C	R	C	R	C
Lycium cooperi	Box-thorn	N				VR	VR					VR	VR	VR								
Opuntia echinocarpa echinocarpa	Golden cholla	N																			VR	
Tetradymia axillaris	N/A	N											VR	VR	VR							
Tetradymia glabrata	N/A	N								VR			VR	VR								
Tetradymia stenolepis	N/A	N		R			R						VR	VR	C	VR	VR		VR	R		
Tree Canopy Layer																						
Yucca brevifolia	Joshua tree	N			VR	VR		VR					VR	VR						VR		
																						Mean
Species Richness			24.00	28.00	22.00	29.00	46.00	49.00	31.00	24.00	27.00	32.00	54.00	53.00	23.00	24.00	23.00	24.00	23.00	24.00	36.00	27.00	31.15
Total Percent Native			87.50	85.71	90.91	93.10	89.13	89.80	83.87	75.00	92.59	87.50	90.74	92.45	82.61	83.33	86.96	87.50	82.61	83.33	91.67	88.89	87.26
Mean Species Richness			26.00		25.50		47.50		27.50		29.50		53.50		23.50		23.50		23.50		31.50	
Mean Percent Native			86.61		92.01		89.46		79.44		90.05		91.60		82.97		87.23		82.97		90.28	

Notes:

* N = Native, I = Introduced, N/A = Not Applicable, no common name in Munz

Table A-4b
Vegetation Data Summary, Edwards AFB
Arid Phase Saltbush Scrub, Percent Cover

Scientific Name	Common Name	Status*	Arid Phase Saltbush Scrub Transects																				
			1A	1B	2A	2B	8A	8B	10A	10B	11A	11B	12A	12B	14A	14B	15A	15B	40A	40B	44A	44B	Mean
Terrestrial Surface Layer																							
Amsinckia tessellata	Fiddleneck	N	1.78	2.22	0.06	0.30	1.50	0.80					0.18	1.06	1.66	0.66	0.44	0.78		0.44	1.14	0.08	0.87
Astragalus didymocarpus	Locoweed	N	3.24	7.60											0.06		0.20						2.78
Bromus rubens	Foxtail chess	I	7.40	6.26	8.86	0.92	22.10	22.88	2.40	4.48	1.84	1.76	30.72	24.56	5.32	22.58	11.06	5.42	11.24	12.08	4.10	4.88	10.54
Bromus tectorum	Cheatgrass	I		0.54			2.38	0.80	1.14		0.08	0.10	5.12	8.84	5.06	0.10			2.46	0.70			2.28
Bromus trinii	Bromegrass	I							0.08	0.04				0.44									0.19
Calyptridium monandrum	N/A	N			0.02	0.06			0.20		0.14	0.36											0.16
Camissonia boothii desertorum	N/A	N				0.08			0.16	0.04													0.09
Camissonia campestris	N/A	N			0.16	0.10		0.66			0.10		0.72	0.30			0.04	0.08					0.27
Camissonia sp.	N/A	N																			1.08	0.16	0.62
Centrostegia thurberi	N/A	N					0.44																0.44
Chaenactis fremontii	N/A	N				0.12					1.26	4.58					0.36	0.34					1.33
Chaenactis stevioides	N/A	N							0.36	1.32	2.22	1.88											1.45
Chaenactis xantiana	N/A	N							0.96	0.26													0.61
Chaenactis sp.	N/A	N																			1.42	0.78	1.10
Chorizanthe brevicornu brevicornu	N/A	N		1.48	0.04		0.96								1.00		0.06	0.04		0.34			0.56
Chorizanthe perfoliata	N/A	N												0.16									0.16
Chorizanthe spinosa	N/A	N						0.16															0.16
Chorizanthe sp.	N/A	N														3.98							3.98
Coreopsis bigelovii	Tickseed	N						3.52	0.12														1.82
Coreopsis calliopsidea	Tickseed	N						1.40					0.20										0.80
Cryptantha dumetorum	N/A	N								0.82	0.66	0.30	2.00	1.20									1.00
Cryptantha micrantha micrantha	N/A	N	0.06	0.06			0.28	0.10	0.14			0.30	1.30	0.74							2.22	0.04	0.52
Cryptantha pterocarya	N/A	N							0.34	0.02		0.56									0.66	0.08	0.33
Cryptantha sp.	N/A	N							0.30														0.30
Cymopterus deserticola	N/A	N																			0.08		0.08
Delphinium parishii parishii	N/A	N			0.26																		0.26
Descurainia pinnata glabra	Tansy-mustard	N											0.10	0.20			0.10	0.20			0.90	0.44	0.32
Eremocarpus setigerus	Doveweed	N						0.34											0.10				0.22
Eriastrum eremicum	N/A	N	0.36	0.14																			0.25
Eriastrum sapphirinum ambiguum	N/A	N	0.14		0.10	0.08	0.30	0.10	0.68	0.70	0.08	0.08	0.12	1.10					0.88	0.72			0.39
Eriogonum gracillimum	Wild buckwheat	N	6.72	5.00			0.84	4.06	0.02	0.64			0.24	1.20			0.12	0.32	0.26	0.30			1.64
Eriogonum pusillum	Wild buckwheat	N				0.12	0.30	0.42			0.58	0.26	1.14	0.62	1.64	0.92							0.67
Eriogonum trichopes	Wild buckwheat	N						4.44															4.44
Eriophyllum pringlei	N/A	N														0.98					1.90		1.44
Eriophyllum wallacei	N/A	N					0.06																0.06
Erodium cicutarium	Filaree	I	44.30	47.40			42.00	36.90	0.06	0.86		5.10	13.70	19.60	30.98	27.84	8.68	23.50	51.94	48.84	9.80	11.42	24.88
Eschscholzia minutiflora minutiflora	California poppy	N										0.24						0.06			0.20		0.17
Euphorbia albomarginata	Rattlesnake weed	N					0.26	0.82															0.54
Festuca microstachys	Fescue	N		0.50			2.58							1.00			0.06						1.04
Festuca octoflora	Six-weeks fescue	N		0.46			1.36		0.24				0.20	0.48		0.06	0.26				1.28	0.06	0.49
Filago depressa	Filago	N	0.04	0.42		0.04	0.18	0.64	2.82		3.64	2.26	0.94	0.76	0.16	0.66			0.38	0.68	0.82	0.04	0.91
Gilia latiflora	Gilia	N					0.70	1.50	0.24	2.34			0.06				0.18	0.32					0.76
Gilia micromeria	Gilia	N				0.08					2.54	0.32					0.94						0.97
Gilia minor	Gilia	N	8.72	8.40	0.06		11.44	1.64					0.18	0.36	4.14	5.20		4.12	0.40	0.76	0.54	0.74	3.34
Gilia sp.	Gilia	N																			1.06		1.06
Gutierrezia microcephala	Matchweed	N						0.74															0.74
Hordeum leporinum	Barley	I							2.36	0.50													1.43

Scientific Name	Common Name	Status*	Arid Phase Saltbush Scrub Transects																				Mean
			1A	1B	2A	2B	8A	8B	10A	10B	11A	11B	12A	12B	14A	14B	15A	15B	40A	40B	44A	44B	
Lactuca sativa	Lettuce	N												0.10									0.10
Lasthenia californica	N/A	N	13.46	11.02			10.22	9.88	0.38	2.78			0.14		19.20	15.00	29.36	7.00	25.84	34.50	0.76		12.82
Lepidium flavum flavum	Peppergrass	N							0.22	1.92	0.94	0.04											0.78
Lepidium lasiocarpum	Peppergrass	N	0.10																				0.10
Lepidium sp.	Peppergrass	N													0.12	0.60							0.36
Lessingia lemmonii ramulosissima	N/A	N					0.04	0.48															0.26
Linanthus parryae	N/A	N													0.58	3.14					0.48		1.40
Loeselliastrum matthewsii	N/A	N												0.16									0.16
Lupinus bicolor	Lupine	N	0.94	0.38																			0.66
Lupinus odoratus	Lupine	N																1.00	2.18		0.24		1.14
Lygodesmia exigua	N/A	N						2.36					0.30			0.06							0.91
Malacothrix coulteri	Snake's head	N						0.36	0.14	1.02	1.66	0.16						1.02			0.24	0.04	0.58
Malacothrix glabrata	Desert dandelion	N	0.08	0.10	0.04	0.60	0.20	0.50	3.18	0.20	0.30	0.12	0.46	2.38			1.58	4.04			0.40	0.68	0.93
Mentzelia albicaulis	Blazing star	N		0.50		0.06															0.04		0.20
Mirabilis bigelovii aspera	Four-o'clock	N																0.40		0.82		0.30	0.51
Nitrophila occidentalis	N/A	N							2.46														2.46
Oryzopsis hymenoides	Ricegrass	N			0.80	2.94		1.16					0.40	0.00									1.06
Pectocarya penicillata	N/A	N					2.74	0.14	0.10	0.36			0.08			0.06		2.26					0.82
Pectocarya sp.	N/A	N																			0.30		0.30
Phacelia fremontii	N/A	N							0.18		0.22												0.20
Phacelia tanacetifolia	N/A	N				0.80	1.60	1.90			0.40		0.30	2.34				1.30	0.20	4.48			1.48
Phacelia sp.	N/A	N							0.28	0.44		0.08										0.10	0.23
Plagiobothrys canescens	N/A	N							0.08														0.08
Rafinesquia neomexicana	N/A	N			0.04						0.80					0.20							0.35
Schismus barbatus	N/A	I	8.70	14.44	15.84	30.76	15.00	21.16	16.34	26.22	21.48	23.56	15.74	16.04	7.88	10.78	13.78	22.38	1.42	11.30	0.88	0.98	14.73
Sitanion hystrix	Squirreltail	N						0.20															0.20
Sphaeralcea ambigua	Desert mallow	N				1.34																0.12	0.73
Stephanomeria parryi	N/A	N															0.38	0.20					0.29
Stephanomeria pauciflora	N/A	N											0.74	0.60									0.67
Stillingia paucidentata	N/A	N			0.24	2.10																	1.17
Stipa speciosa	Needlegrass	N						0.70								1.50							1.10
Streptanthella longirostris	N/A	N	0.20		0.10			1.70		0.94	0.12	0.12		0.16			0.24	2.90			0.04	0.40	0.63
Tropidocarpum gracile	N/A	N																0.50					0.50
Unknown polemone	Family Polemoniace	N																				0.08	0.08

Scientific Name	Common Name	Status*	Arid Phase Saltbush Scrub Transects																				
			1A	1B	2A	2B	8A	8B	10A	10B	11A	11B	12A	12B	14A	14B	15A	15B	40A	40B	44A	44B	Mean
Shrub Layer																							
Acamptopappus sphaerocephalus	Goldenhead	N	1.20	1.18			1.96	2.20					1.80	4.00						2.40	0.50		1.91
Ambrosia dumosa	Burro-weed	N	4.56	1.36	9.40	1.74	1.54	1.10	3.58		2.60	4.74		0.20	0.50	2.60	3.92	2.84	0.90	1.00		3.06	2.68
Artemisia spinescens	Basin sagebrush	N							2.00				2.10								1.32	1.48	1.73
Atriplex confertifolia	Saltbush	N											2.18	1.50									1.84
Atriplex lentiformis	Saltbush	N							1.30														1.30
Atriplex polycarpa	Saltbush	N	2.20	5.06	2.66	1.88	8.22	12.98	9.16	17.94	10.44	5.30	2.34	4.90	2.80	8.66	13.70	5.00	13.20	4.02	2.02	1.94	6.72
Atriplex spinifera	Saltbush	N						2.94	2.70														2.82
Eurotia lanata	N/A	N					1.00	0.80						2.20	0.04							2.30	1.27
Ephedra nevadensis	Mormon tea	N				3.04							7.50	4.60									5.05
Grayia spinosa	Hop-sage	N		1.30		0.60	1.50						2.30		3.00						0.60	0.80	1.44
Haplopappus cooperi	N/A	N		2.26			0.92	1.92				0.48			1.10	0.10						0.66	1.06
Hymenoclea salsola	N/A	N		0.64		0.90		1.74					1.14	2.30		0.60				2.20	2.72		1.53
Lepidium fremontii	Peppergrass	N			1.18						2.34		1.74	0.70									1.49
Lycium andersonii	Box-thorn	N		0.60		1.30					1.80				0.64	2.50	1.00	2.30	0.32	1.50	1.30	0.40	1.24
Lycium cooperi	Box-thorn	N										2.20											2.20
Opuntia echinocarpa echinocarpa	Golden cholla	N																			0.30		0.30
Tetradymia axillaris	N/A	N														1.50							1.50
Tetradymia stenolepis	N/A	N					1.84								0.80								1.32
Bare Ground			12.70	7.52	58.62	49.48	12.16	21.88	41.02	46.60	49.92	52.88	21.40	23.08	17.22	12.34	46.64	45.06	20.70	17.14	66.04	69.36	34.59
Litter			8.62	10.32	7.14	7.52	10.22	12.68	4.30	6.58	7.52	8.10	14.78	15.76	7.46	6.82	4.22	3.80	7.98	8.20	6.88	7.86	8.34
Rock			18.64	19.96	0.00	0.00	15.00	0.74	14.46	0.36	0.00	0.20	13.10	10.24	27.28	25.46	0.04	0.00	7.36	13.58	0.00	0.00	8.32
Total Terrestrial Layer			96.24	106.92	26.62	40.50	117.48	122.46	35.98	45.90	39.06	42.18	75.08	84.40	77.80	94.32	67.84	78.18	97.30	115.96	30.58	21.42	70.81
Total Shrub Layer			7.96	12.40	13.24	9.46	16.98	23.68	18.74	17.94	17.18	12.72	21.10	20.40	8.88	15.96	18.62	10.14	14.42	11.12	8.76	10.64	14.52
Total Tree Canopy Layer			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Overlay Layer			104.20	119.32	39.86	49.96	134.46	146.14	54.72	63.84	56.24	54.90	96.18	104.80	86.68	110.28	86.46	88.32	111.72	127.08	39.34	32.06	85.33
Total Projective Cover			60.04	62.20	34.24	43.00	62.62	64.70	40.22	46.46	42.56	38.82	50.72	50.92	48.04	55.38	49.10	51.14	63.96	61.08	27.08	22.78	48.75

Mean Bare Ground		10.11	54.05	17.02	43.81	51.40	22.24	14.78	45.85	18.92	67.70
Mean Litter		9.47	7.33	11.45	5.44	7.81	15.27	7.14	4.01	8.09	7.37
Mean Rock		19.30	0.00	7.87	7.41	0.10	11.67	26.37	0.02	10.47	0.00

Mean Terrestrial Layer		101.58	33.56	119.97	40.94	40.62	79.74	86.06	73.01	106.63	26.00
Mean Shrub Layer		10.18	11.35	20.33	18.34	14.95	20.75	12.42	14.38	12.77	9.70
Mean Tree Canopy Layer		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mean Overlay Layer		111.76	44.91	140.30	59.28	55.57	100.49	98.48	87.39	119.40	35.70
Mean Projective Cover		61.12	38.62	63.66	43.34	40.69	50.82	51.71	50.12	62.52	24.93

Notes:

* I = Introduced, N = Native, N/A = Not Applicable, no common name in Munz

Table A-4c
Vegetation Data Summary, Edwards AFB
Arid Phase Saltbush Scrub, Mean Heights of Dominant Shrubs

Scientific Name	Common Name	Status*	Arid Phase Saltbush Scrub Transects																			
			1A	1B	2A	2B	8A	8B	10A	10B	11A	11B	12A	12B	14A	14B	15A	15B	40A	40B	44A	44B
Acamptopappus sphaerocephalus	Goldenhead	N	58.00	47.33		48.00	51.00	41.33					50.33	39.00					51.00	48.67		
Ambrosia dumosa	Burrobush	N	59.67	51.33	50.67	51.33	44.67	39.00	42.67		55.00	45.67	47.00		53.67		44.00	36.33	56.33	47.00		39.67
Artemisia spinescens	Sagebrush	N							27.33	16.33			45.33								29.33	
Atriplex confertifolia	Saltbush	N						63.67					78.67	69.00								
Atriplex polycarpa	Saltbush	N	85.33	89.33	65.00	67.00	111.33	95.00	59.00	76.00	76.00	61.33	69.00	93.67	84.67	89.33	79.67	80.33	100.67	104.33	67.00	
Atriplex spinifera	Saltbush	N						82.33	83.67													
Eurotia lanata	N/A	N					66.67	59.67					56.67	56.67								59.00
Chrysothamnus nauseosus mohavensis	Rabbit-brush	N											84.67									
Ephedra nevadensis	Mormon tea	N											67.33	65.67								
Grayia spinosa	Hop-sage	N	70.33	73.67			88.67	66.33					78.00		78.33	78.33						72.67
Halopappus arcradenius acradenius	N/A	N														45.67						
Haplopappus cooperi	N/A	N	54.67	49.33			32.33	25.67							45.67	47.00			35.00			
Hymenoclea salsola	N/A	N				67.67	78.33	66.67					74.00	64.33		70.00				69.00	52.00	
Lepidium fremontii	Peppergrass	N			61.00						57.33	69.33	65.33	63.67								
Lycium andersonii	Box-thorn	N	46.33	49.33			67.67				53.67		62.33		41.00	74.00	43.67	50.00	46.67	56.33		
Tetradymia glabrata	N/A	N								72.67				50.00								
Tetradymia stenolepis	N/A	N					78.33								71.67	53.33			80.00	76.33		

Notes:

N = Native, N/A = Not Applicable, no common name in Munz

Table A-5a
Vegetation Data Summary, Edwards AFB
Mesquite Woodland, Relative Abundance

Scientific Name	Common Name	Status*	Mesquite Woodland Transects					
			53A	53B	56A	56B	60A	60B
Terrestrial Surface Layer								
Amsinckia tessellata	Fiddleneck	N	VR	VR	R	VR	VR	VR
Atriplex phyllostegia	Arrowscale	N	R	VR		VR	VR	R
Bromus rubens	Foxtail chess	I	C	VA	VA	C	C	A
Bromus tectorum	Cheatgrass	I	C	VA	C	C	C	A
Bromus trinii	Bromegrass	I	A	A	C	R	VR	VR
Calochortus striatus	Mariposa lily	N				VR		
Chaenactis stevioides	N/A	N	VR					
Cryptantha dumetorum	N/A	N	VR	VR	VR			
Descurainia pinnata glabra	Tansy-mustard	N	VR	VR				
Descurainia sophia	Saltgrass	I			VR	VR	VR	
Eriastrum sapphirinum ambiguum	Wild buckwheat	N					VR	VR
Eriogonum gracillimum	Desert trumpet	N	VR	VR	VR	VR		
Erodium cicutarium	California poppy	I	VR	VR	C	C	R	R
Festuca microstachys	Six-weeks fescue	N				VR		
Gilia latiflora	Gilia	N	VR					
Gutierrezia microcephala	Barley	N			VR		VR	R
Hordeum leporinum	Toad rush	I	R	VA	A	C	R	C
Lasthenia glabrata var. calirfornica	Lettuce	N	VR		VR	VR	VR	VR
Lepidium flavum flavum	Peppergrass	N		VR		R	VR	VR
Malacothrix coulteri	Desert dandelion	N		VR	VR			
Malacothrix glabrata	Wild cucumber	N	VR	VR				VR
Marah fabaceus	Pineappleweed	N						
Matricaria occidentalis	Blazing star	N			VR	R	VR	VR
Monolepis nuttalliana	Desert star	N	VR		VR	R		
Nitrophila occidentalis	Evening-primrose	N	C	VR			VR	VR
Pectocarya penicillata	N/A	N	VR					
Phacelia fremontii	N/A	N	VR					
Poa secunda	N/A	N					VR	VR
Schismus barbatus	Bristlegrass	I	C	A	C	R	R	
Stephanomeria pauciflora	N/A	N						VR
Streptanthella longirostris	Desert aster	N				VR		
Unknown dicot forb	Class Dicotyledonae	N	VR				VR	
Shrub Layer								
Artemisia tridentata parishii	Basin sagebrush	N			VR	R		
Atriplex canescens canescens	Saltbush	N						R
Atriplex confertifolia	Saltbush	N		R	R	R	R	C
Atriplex lentiformis	Saltbush	N	C	R			C	C
Atriplex spinifera	Saltbush	N	R	C	A	C	C	C
Atriplex torreyi	Saltbush	N		VR				
Chrysothamnus nauseosus mohavensis	Rabbit-brush	N						VR
Ephedra nevadensis	Mormon tea	N					R	VR
Lepidium fremontii	Peppergrass	N				VR		
Suaeda moquinii	Seep-weed	N	A				R	C
Tetradymia glabrata	N/A	N			VR		VR	VR
Tree Canopy Layer								
Prosopis glandulosa torreyana	Mesquite	N	C	A	C	R	A	A
Yucca brevifolia	Joshua tree	N			VR		VR	VR

								Mean
Species Richness		24.0	20.0	21.0	22.0	25.0	26.0	23.0
Total Percent Native		75.0	70.0	66.7	68.2	72.0	80.8	72.1

Mean Species Richness		22.0	21.5	25.5
Mean Percent Native		72.5	67.4	76.4

Notes:

* N = Native, I = Introduced, N/A = Not Applicable, no common name in Munz

Table A-5b
Vegetation Data Summary, Edwards AFB
Mesquite Woodland, Percent Cover

Scientific Name	Common Name	Status*	Mesquite Woodland Transects						
			53A	53B	56A	56B	60A	60B	Mean
Terrestrial Surface Layer									
Amsinckia tessellata	Fiddleneck	N	0.56	3.14	9.70	0.16	0.20	0.40	2.36
Atriplex phyllostegia	Arrowscale	N	0.30	0.70					0.50
Bromus rubens	Foxtail chess	I	12.60	28.82	40.06	11.18	29.20	18.76	23.44
Bromus tectorum	Cheatgrass	I	6.20	19.62	4.48	3.40	19.28	24.26	12.87
Bromus trinii	Bromegrass	I	14.82	13.88	15.62	3.12	1.12	1.30	8.31
Calochortus striatus	Mariposa lily	N				0.20			0.20
Chaenactis stevioides	N/A	N	0.06						0.06
Cryptantha dumetorum	N/A	N	0.98	0.10					0.54
Descurainia pinnata glabra	Tansy-mustard	N	0.08	0.20					0.14
Descurainia sophia	Tansy-mustard	I			0.40	0.08	0.34		0.27
Eriogonum gracillimum	Wild buckwheat	N	0.74	0.50	0.04	0.06			0.34
Erodium cicutarium	Filaree	I	3.32		8.56	7.44	5.76	6.10	6.24
Festuca microstachys	Fescue	N				0.46			0.46
Gilia latiflora	Gilia	N	0.08						0.08
Gutierrezia microcephala	Matchweed	N						0.60	0.60
Hordeum leporinum	Barley	I	2.46	24.96	11.96	2.82	7.94	28.04	13.03
Lactuca sativa	Lettuce	N						1.70	1.70
Lasthenia glabrata var. californica	goldfield	N	0.06		0.10	0.18	0.52		0.22
Lepidium flavum flavum	Peppergrass	N		0.04		2.18	0.14		0.79
Malacothrix coulteri	Snake's head	N		0.34	0.16				0.25
Malacothrix glabrata	Desert dandelion	N	0.68					0.04	0.36
Matricaria occidentalis	Pineappleweed	N			0.64	2.22	1.38	1.08	1.33
Monolepis nuttalliana	N/A	N	0.06			1.62			0.84
Pectocarya penicillata	N/A	N	0.16			0.06			0.11
Phacelia sp.	N/A	N	0.60						0.60
Schismus barbatus	N/A	I	21.26	5.94	1.98	7.40	3.14	3.42	7.19
Unknown dicot forb	Class Dicotyledonae	N	0.10				0.02		0.06
Shrub Layer									
Artemisia tridentata parishii	Basin sagebrush	N						7.70	7.70
Atriplex confertifolia	Saltbush	N			0.50				0.50
Atriplex lentiformis	Saltbush	N	13.84	0.94			4.66	1.44	5.22
Atriplex spinifera	Saltbush	N	3.20	2.20	7.74	4.94	5.08	2.50	4.28
Atriplex torreyi	Saltbush	N		1.60					1.60
Ephedra nevadensis	Mormon tea	N					4.00		4.00
Suaeda moquinii	Seep-weed	N	6.74	9.04				3.10	6.29

Table A-5b, Page 2 of 2

Scientific Name	Common Name	Status*	Mesquite Woodland Transects						
			53A	53B	56A	56B	60A	60B	Mean
Tree Canopy Layer									
Prosopis glandulosa torreyana	Mesquite	N	8.80	14.20	10.50	4.20	24.46	34.58	16.12
Bare Ground			18.64	17.50	23.66	66.48	38.94	12.52	29.62
Litter			14.64	8.22	13.04	3.76	7.76	11.26	9.78
Rock			0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Terrestrial Layer			65.12	98.24	93.70	42.58	69.04	85.70	75.73
Total Shrub Layer			23.78	13.78	8.24	4.94	13.74	14.74	13.20
Total Tree Canopy Layer			8.80	14.20	10.50	4.20	24.46	34.58	16.12
Total Overlay Layer			97.70	126.22	112.44	51.72	107.24	135.02	105.06
Total Projective Cover			66.72	74.28	63.30	29.76	53.30	76.22	60.60
Mean Bare Ground			18.07		45.07		25.73		
Mean Litter			11.43		8.40		9.51		
Mean Rock			0.00		0.00		0.00		
Mean Terrestrial Layer			81.68		68.14		77.37		
Mean Shrub Layer			18.78		6.59		14.24		
Mean Tree Canopy Layer			11.50		7.35		29.52		
Mean Overlay Layer			111.96		82.08		121.13		
Mean Projective Cover			70.50		46.53		64.76		

Notes:

* I = Introduced, N = Native, N/A = Not Applicable, no common name in Munz

Table A-5c
Vegetataion Data Summary, Edwards AFB
Mesquite Woodland, Mean Heights of Dominant Shrubs

Scientific Name	Common Name	Status*	Mesquite Woodland					
			53A	53B	56A	56B	60A	60B
Artemisia tridentata parishii	Basin sagebrush	N			127.33	133.33	211.00	186.33
Atriplex canescens canescens	Saltbush	N						98.33
Atriplex confertifolia	Saltbush	N	64.67	65.33	80.00	67.00	67.67	74.33
Atriplex lentiformis	Saltbush	N	110.67	79.33			78.67	92.67
Atriplex spinifera	Saltbush	N	88.67	85.00	85.33	91.67	93.33	84.00
Ephedra nevadensis	Mormon tea	N					67.67	
Lepidium fremontii	Peppergrass	N				64.67		
Suaeda moquinii	Seep-weed	N	76.00	82.00			81.33	77.67

Notes:

N = Native

APPENDIX B

Wildlife Survey Results

B-1	Herpetofauna
B-2	Birds
B-3	Large Mammals
B-4	Small Mammals

Table B-1a
Herpetofauna Data Summary
Joshua Tree Woodland, Edwards AFB

Family		Transect 4			Transect 5			Transect 7			Transect 17			Transect 25			Transect 26		
Scientific Name	Common Name	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3
Testudinidae - Land Tortoises																			
Gopherus agassizii	Desert tortoise	----	1	----	----	----	----	----	1	----	----	----	----	----	----	----	1	----	----
Iguanidae - Iguanids																			
Sceloporus magister	Desert spiny lizard	----	----	----	1	----	----	1	1	1	----	----	----	----	----	----	1	----	----
Uta stansburiana	Side-blotched lizard	2	3	2	1	2	2	1	2	2	3	5	2	3	3	5	6	1	3
Phrynosoma platyrhinos	Desert horned lizard	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Xantusiidae - Night lizards																			
Xantusia vigilis	Desert night lizard	----	----	1	----	----	----	----	----	1	5	----	----	----	1	----	----	----	----
Teiidae - Whiptails																			
Cnemidophorus tigris	Western whiptail	----	----	----	----	----	----	6	1	1	5	1	----	2	1	2	----	----	----
	Species Richness		3			2			5			3			3			3	
	Number of Individuals		5			3			11			15			8			8	
	Relative Abundance (Individuals/3 hectares)		5			3			11			15			8			8	

Family		Transect 30			Transect 31			Transect 36			Transect 37			Transect 38			Transect 46		
Scientific Name	Common Name	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3
Testudinidae - Land Tortoises																			
Gopherus agassizii	Desert tortoise	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Iguanidae - Iguanids																			
Sceloporus magister	Desert spiny lizard	----	----	----	----	----	----	----	----	----	----	1	----	----	----	----	----	2	1
Uta stansburiana	Side-blotched lizard	3	1	2	4	5	1	3	1	1	8	4	7	2	4	1	5	9	4
Phrynosoma platyrhinos	Desert horned lizard	----	----	1	----	----	----	----	----	----	----	----	1	----	----	1	----	1	----
Xantusiidae - Night lizards																			
Xantusia vigilis	Desert night lizard	----	----	----	----	----	----	5	2	1	----	----	----	----	----	----	----	----	----
Teiidae - Whiptails																			
Cnemidophorus tigris	Western whiptail	----	----	----	----	----	----	----	----	1	----	----	1	----	----	----	1	1	----
	Species Richness		2			1			3			4			2			4	
	Number of Individuals		4			5			9			11			5			13	
	Relative Abundance (Individuals/3 hectares)		4			5			9			11			5			13	

Table B-1b
Herpetofauna Data Summary
Creosote Bush Scrub, Edwards AFB

Family		Transect 3			Transect 6			Transect 9			Transect 13			Transect 16			Transect 18			Transect 19			Transect 20			Transect 21			Transect 22			Transect 23		
Scientific Name	Common Name	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3
Testudinidae - Land Tortoises																																		
Gopherus agassizii	Desert tortoise	----	1	1	----	----	1	----	----	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Iguanidae - Iguanids																																		
Sceloporus magister	Desert spiny lizard	----	----	----	----	----	----	----	----	----	----	----	1	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Uta stansburiana	Side-blotched lizard	6	3	2	2	----	1	2	1	1	1	1	1	----	----	----	2	4	3	----	----	----	----	1	1	2	3	4	----	1	----	----	----	----
Phrynosoma platyrhinos	Desert horned lizard	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Uma scoparia	Mojave fringe toed lizard	----	----	----	----	----	----	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Gambelia wislizenii	Leopard lizard	----	----	1	----	----	----	----	----	----	----	----	----	1	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Callisaurus draconoides	Zebra tailed lizard	----	----	----	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Diposaurus dorsalis	Desert iguana	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Xantusiidae - Night lizards																																		
Xantusia vigilis	Desert night lizard	----	----	2	----	----	----	----	----	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Teiidae - Whiptails																																		
Cnemidophorus tigris	Western whiptail	1	1	2	----	5	2	6	6	3	1	1	5	8	5	5	1	----	1	1	4	----	2	3	3	7	2	2	2	4	4	5	5	3
Viperidae - Vipers																																		
Pituphis melanoleucurus	Gopher snake	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----
Crotalus scutalatus	Mojave rattlesnake	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Colubridae - Colubrids																																		
Masticophis flagellum	Coachwhip	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----
Species Richness			5			5			3			5			3			2			3			2			2			2			2	
Number of Individuals			12			10			9			9			10			5			6			4			11			5			6	
Relative Abundance (Individuals/3 hectares)			12			10			9			9			10			5			6			4			11			5			6	

Table B-1b, Page 2 of 2

Family / *Scientific Name*	Common Name	Transect 27			Transect 28			Transect 29			Transect 32			Transect 33			Transect 34			Transect 35			Transect 39			Transect 47			Transect 49			Transect 50		
		Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3
Testudinidae - Land Tortoises																																		
Gopherus agassizii	Desert tortoise	----	----	----	----	----	----	----	----	----	----	----	2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	----	----	1	1
Iguanidae - Iguanids																																		
Sceloporus magister	Desert spiny lizard	----	----	----	----	----	2	1	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	2	----	----	----	1	----	----	----
Uta stansburiana	Side-blotched lizard	----	1	----	1	1	----	----	----	----	1	----	----	2	1	2	----	----	----	1	----	1	2	2	1	4	10	6	1	3	2	3	----	2
Phrynosoma platyrhinos	Desert horned lizard	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Uma scoparia	Mojave fringe toed lizard	----	----	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	1	----	----	----	----	----
Gambelia wislizenii	Leopard lizard	----	----	----	----	----	----	----	----	----	----	1	----	----	----	----	2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Callisaurus draconoides	Zebra tailed lizard	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Diposaurus dorsalis	Desert iguana	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	----
Xantusiidae - Night lizards																																		
Xantusia vigilis	Desert night lizard	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	----	----	----	----
Teiidae - Whiptails																																		
Cnemidophorus tigris	Western whiptail	2	1	4	4	2	2	4	7	6	4	3	4	4	2	----	2	1	1	5	4	4	----	1	4	----	----	1	----	1	1	----	----	2
Viperidae - Vipers																																		
Pituophis melanoleucurus	Gopher snake	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	----	----	----	----	----	----	----	----	----	----
Crotalus scutalatus	Mojave rattlesnake	----	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Colubridae - Colubrids																																		
Masticophis flagellum	Coachwhip	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	----	----	----	----	1	----	----	----	----	----	----	----	----	----	----	----
Species Richness			2			4			3			5			2			3			2			4			4			6			4	
Number of Individuals			5			8			9			8			6			5			6			8			14			8			7	
Relative Abundance (Individuals/3 hectares)			5			8			9			8			6			5			6			8			14			8			7	

Table B-1c
Herpetofauna Data Summary
Halophytic Phase Saltbush Scrub, Edwards AFB

Family		Transect 24			Transect 41			Transect 42			Transect 43			Transect 45			Transect 48			Transect 51		
Scientific Name	Common Name	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3
Testudinidae - Land Tortoises																						
Gopherus agassizii	Desert tortoise	----	----	----	----	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Iguanidae - Iguanids																						
Sceloporus magister	Desert spiny lizard	----	----	----	----	----	----	----	1	2	----	----	----	----	----	1	1	----	1	----	----	----
Uta stansburiana	Side-blotched lizard	1	1	1	2	2	1	----	4	3	4	4	1	2	4	4	1	2	4	3	1	4
Phrynosoma platyrhinos	Desert horned lizard	2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----
Uma scoparia	Mojave fringe toed lizard	----	1	2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Gambelia wislizenii	Leopard lizard	----	----	----	----	----	----	----	----	----	1	----	----	----	----	3	2	----	----	----	----	----
Xantusiidae - Night lizards																						
Xantusia vigilis	Desert night lizard	----	----	----	----	----	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----
Teiidae - Whiptails																						
Cnemidophorus tigris	Western whiptail	5	2	4	----	1	2	2	1	4	3	8	3	8	7	9	6	2	8	1	3	1
Colubridae - Colubrids																						
Masticophis flagellum	Coachwhip	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	Species Richness		4			2			5			3			4			4			3	
	Number of Individuals		10			4			12			13			17			15			8	
	Relative Abundance (Individuals/3 hectares)		10			4			12			13			17			15			8	

Family		Transect 52			Transect 54			Transect 55			Transect 57			Transect 58			Transect 59		
Scientific Name	Common Name	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3
Testudinidae - Land Tortoises																			
Gopherus agassizii	Desert tortoise	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Iguanidae - Iguanids																			
Sceloporus magister	Desert spiny lizard	----	----	----	----	----	----	----	----	----	----	----	1	----	----	----	----	----	----
Uta stansburiana	Side-blotched lizard	3	3	2	4	1	2	----	1	----	2	3	3	4	4	4	4	4	2
Phrynosoma platyrhinos	Desert horned lizard	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Uma scoparia	Mojave fringe toed lizard	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Gambelia wislizenii	Leopard lizard	----	----	----	----	1	----	----	1	----	----	----	----	----	----	----	----	----	----
Xantusiidae - Night lizards																			
Xantusia vigilis	Desert night lizard	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Teiidae - Whiptails																			
Cnemidophorus tigris	Western whiptail	4	2	2	2	3	2	----	3	4	2	5	3	2	1	----	5	2	5
Colubridae - Colubrids																			
Masticophis flagellum	Coachwhip	----	----	----	----	----	----	----	----	----	----	----	1	----	----	----	----	----	----
	Species Richness		2			3			3			4			2			2	
	Number of Individuals		7			8			6			10			6			9	
	Relative Abundance (Individuals/3 hectares)		7			8			6			10			6			9	

Table B-1d
Herpetofauna Data Summary
Arid Phase Saltbush Scrub, Edwards AFB

Family		Transect 1			Transect 2			Transect 8			Transect 10			Transect 11			Transect 12			Transect 14			Transect 15			Transect 40			Transect 44		
Scientific Name	Common Name	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3
Iguanidae - Iguanids																															
Sceloporus magister	Desert spiny lizard	----	----	----	2	----	----	----	----	----	----	----	----	----	----	----	1	1	1	----	----	----	----	----	----	----	----	----	----	----	----
Uta stansburiana	Side-blotched lizard	3	1	2	----	4	4	----	1	2	4	2	2	2	2	5	3	2	4	3	----	1	4	6	6	2	1	3	5	1	5
Phrynosoma platyrhinos	Desert horned lizard	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----
Gambelia wislizenii	Leopard lizard	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	2	----	----	1	----	----	1	1	----	3	----	----	----
Xantusiidae - Night lizards																															
Xantusia vigilis	Desert night lizard	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	----	----
Teiidae - Whiptails																															
Cnemidophorus tigris	Western whiptail	6	2	5	2	----	1	3	3	----	2	2	----	3	1	4	3	2	4	----	1	3	3	4	2	3	5	7	----	----	----
Viperidae - Vipers																															
Crotalus scutulatus	Mojave rattlesnake	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	----	----	----	----	----
	Species Richness		3			3			2			2			2			4			3			4			4			2	
	Number of Individuals		10			8			5			6			9			11			7			12			14			6	
	Relative Abundance (Individuals/3 hectares)		10			8			5			6			9			11			7			12			14			6	

Table B-1e
Herpetofauna Data Summary
Mesquite Woodland, Edwards AFB

Family / *Scientific Name*	Common Name	Transect 53 Day 1	Transect 53 Day 2	Transect 53 Day 3	Transect 56 Day 1	Transect 56 Day 2	Transect 56 Day 3	Transect 60 Day 1	Transect 60 Day 2	Transect 60 Day 3
Iguanidae - Iguanids										
Gambelia wislizenii	Leopard lizard	----	----	----	----	----	----	----	----	1
Sceloporus magister	Desert spiny lizard	----	----	1	----	----	----	----	----	----
Uta stansburiana	Side-blotched lizard	1	1	1	2	10	3	2	4	5
Xantusiidae - Night lizards										
Xantusia vigilis	Desert night lizard	----	----	----	2	----	----	----	----	----
Teiidae - Whiptails										
Cnemidophorus tigris	Western whiptail	4	1	4	4	3	2	4	3	5
	Species Richness		3			3			3	
	Number of Individuals		6			16			11	
	Relative Abundance (Individuals/3 hectares)		6			16			11	

Table B-2a
Bird Species Data Summary
Joshua Tree Woodland, Edwards AFB

Family / *Scientific Name*	Common Name	Transect Number 4	5	7	17	25	26	30	31	36	37	38	46	
Accipitridae - Hawks														
Buteo jamaicensis	Red-tailed hawk	----	P	----	----	----	----	----	----	----	----	P	----	
Phasianidae - Fowl-like birds														
Callipepla gambelii	Gambel's quail	----	----	----	----	----	----	----	----	----	----	2	2	
Columbidae - Pigeons, Doves														
Zenaida macroura	Mourning dove	----	----	3	2	2	2	4	----	----	2	----	2	
Picidae - Woodpeckers														
Picoides scalaris	Ladder-backed woodpecker	----	----	----	----	----	----	2	----	----	----	----	1	
Tyrannidae - Flycatchers														
Sayornis saya	Say's phoebe	----	----	----	----	----	1	----	----	----	----	----	----	
Myiarchus cinerascens	Ash-throated flycatcher	2	2	2	----	----	----	2	2	2	----	----	----	
Tyrannus verticalis	Western kingbird	----	----	----	----	----	----	----	1	----	----	----	----	
Alaudidae - Larks														
Eremophila alpestris	Horned lark	4	9	3	----	5	1	----	----	6	11	3	----	
Hirundinidae - Swallows														
Hirundo pyrrhonota	Cliff swallow	----	----	----	----	----	----	----	----	----	P	----	----	
Corvidae - Crows, Jays														
Corvus corax	Common raven	----	----	P	----	----	----	P	---	P	----	P	----	
Remizidae - Verdin														
Auriparus flaviceps	Verdin	2	----	----	1	----	----	----	----	----	----	----	2	
Troglodytidae - Wrens														
Troglodytes aedon	House wren	----	----	----	----	----	1	----	----	----	----	----	----	
Campylorhynchus brunneicapillus	Cactus wren	2	1	6	2	----	2	2	2	2	----	----	2	
Muscicapidae - Kinglets, Gnatcatchers, Thrushes														
Polioptila caerulea	Blue-gray gnatcatcher	----	1	----	----	----	1	----	----	----	----	2	----	
Regulus calendula	Ruby-crowned kinglet	----	----	----	----	----	----	----	----	----	----	----	1	
Empidonax sp.	Empidonax flycatcher	----	----	1	----	----	----	----	----	----	----	----	----	
Mimidae - Mimic thrushes														
Oreoscoptes montanus	Sage thrasher	----	----	----	----	----	2	----	----	----	----	----	----	
Toxostoma lecontei	LeConte's thrasher	----	----	----	----	----	----	2	----	----	----	----	----	
Mimus polyglottos	Northern mockingbird	----	2	----	----	----	----	----	----	----	----	----	----	
Laniidae - Shrikes														
Lanius ludovicianus	Loggerhead shrike	----	2	1	----	----	1	1	2	----	1	----	3	
Sturnidae - Starlings														
Sturnus vulgaris	European starling	----	2	----	2	----	4	2	2	----	----	----	----	
Emberizidae - Warblers, Sparrows and relatives														
Dendroica coronata	Yellow-rumped warbler	----	----	----	----	----	----	----	----	4	----	----	1	
Dendroica nigrescens	Black-throated gray warbler	----	----	----	----	----	----	----	----	----	----	----	1	
Spizella breweri	Brewer's sparrow	----	1	----	1	1	1	----	----	1	2	----	----	
Amphispiza bilineata	Black-throated sparrow	4	2	----	4	2	2	2	----	----	2	----	2	
Amphispiza belli	Sage sparrow	6	----	12	4	4	2	2	8	12	4	6	2	
Zonotrichia leucophrys	White-crowned sparrow	3	----	----	----	2	----	----	----	2	2	----	16	
Spizella passerina	Chipping sparrow	----	----	----	----	----	----	----	1	----	----	----	1	
Sturnella neglecta	Western meadowlark	----	----	----	----	----	2	4	----	----	3	2	----	
Icterus cucullatus	Hooded oriole	----	----	----	----	----	2	----	----	----	----	----	----	
Icterus parisorum	Scott's oriole	----	----	----	----	----	----	----	----	----	----	----	2	
Fringillidae - Finches														
Carpodacus mexicanus	House finch	----	----	2	2	----	P	----	2	----	----	----	6	
Carduelis psaltria	Lesser goldfinch	----	----	----	----	2	P	----	----	----	----	----	----	
	Species Richness (S)	7	9	8	8	7	14	10	8	7	8	5	15	9
	Number of Individuals (N)	23	22	30	18	18	24	23	20	29	27	15	44	
	Relative Abundance (Individuals/40 hectares)	276	336	266	432	583	445	451	369	516	511	489	585	438

P = Present but not used in relative abundance calculations.

Table B-2b
Bird Species Data Summary
Creosote Bush Scrub, Edwards AFB

Family / *Scientific Name*	Common Name	Transect Number 3	6	9	13	16	18	19	20	21	22	23	27	28	29	32	33	34	35	39	47	49	50
Falconidae - Falcons																							
Falco sparverius	American kestrel																						
Accipitridae - Hawks, etc.																							
Buteo jamaicensis	Red-tailed hawk					P																	
Phasianidae - Fowl-like birds																							
Callipepla gambelii	Gambel's quail																					2	
Columbidae - Pigeons, Doves																							
Zenaida macroura	Mourning dove		1	2	2	2				2		4	4			1			1	1		2	
Strigidae - Typical Owls																							
Athene cunicularia	Burrowing owl																					1	
Caprimulgidae - Goatsuckers																							
Chordeiles acutipennis	Lesser nighthawk														2								
Apodidae - Swifts																							
Chaetura vauxi	Vaux's swift																		P				
Trochilidae - Hummingbirds																							
Calypte anna	Anna's hummingbird																						2
Picidae - Woodpeckers																							
Picoides scalaris	Ladder-backed woodpecker	1			1												1		1				
Tyrannidae - Flycatchers																							
Sayornis saya	Say's phoebe			2															1				
Myiarchus cinerascens	Ash-throated flycatcher					2						1		1									
Tyrannus verticalis	Western kingbird											2											
Empidonax difficilis	Western flycatcher	1																					
Empidonax sp.	Empidonax flycatcher			1									1										
Alaudidae - Larks																							
Eremophila alpestris	Horned lark	14	4		8	7	2	4	2	2	11		4	2	10	1	6	9	5	2	3	5	4
Hirundinidae - Swallows																							
Hirundo pyrrhonota	Cliff swallow																				P		
Hirundo rustica	Barn swallow			P																			
Trachycineta bicolor	Tree swallow	P										1											
Corvidae - Crows, Jays																							
Corvus corax	Common raven	P			P	P		P	P	P	P	P			P	P			P				
Remizidae - Verdin																							
Auriparus flaviceps	Verdin			2		1		2								3			1				
Troglodytidae - Wrens																							
Campylorhynchus brunneicapillus	Cactus wren				9	2																	

Table B-2b, Page 2 of 2

Family / *Scientific Name*	Common Name	Transect Number 3	6	9	13	16	18	19	20	21	22	23	27	28	29	32	33	34	35	39	47	49	50
Muscicapidae - Kinglets and Gnatcatchers																							
Polioptila caerulea	Blue-gray gnatcatcher	1																					1
Mimidae - Mockingbirds and Thrashers																							
Oreoscoptes montanus	Sage thrasher						1																
Toxostoma lecontei	LeConte's thrasher				3					1				2									
Mimus polyglottos	Northern mockingbird	2		2								1								2			
Ptilogonatidae - Silky flycatchers																							
Phainopepla nitens	Phainopepla																		1				
Laniidae - Shrikes																							
Lanius ludovicianus	Loggerhead shrike				1		1		2													3	
Sturnidae - Starlings																							
Sturnus vulgaris	European starling			2								3										1	
Vireonidae - Vireos																							
Vireo gilvus	Warbling vireo	1																					
Vireo solitarius	Solitary vireo											2											
Emberizidae - Warblers, Sparrows and relatives																							
Wilsonia pusilla	Wilson's warbler											4			1					1			
Dendroica coronata	Yellow-rumped warbler																						
Piranga ludoviciana	Western tanager											8		2									
Pheucticus melanocephalus	Black-headed grosbeak													1									
Spizella passerina	Chipping sparrow	1														1							
Spizella breweri	Brewer's sparrow		1																				
Amphispiza bilineata	Black-throated sparrow	2	2	2		8	2		2	4		2	2		2				4		2		
Amphispiza belli	Sage sparrow	6	12		2	14	4	20	8	10	4	4	8	7	8	16	3	4	2	20	3	2	7
Chondestes grammacus	Lark sparrow			2								2											
Zonotrichia leucophrys	White-crowned sparrow	1															1			1	3	1	
Sturnella neglecta	Western meadowlark				3	2														2			
Euphagus cyanocephalus	Brewer's blackbird																		P				
Icterus galbula	Northern oriole											3											
Fringillidae - Finches																							
Carpodacus mexicanus	House finch	P		2		2					2	11	2	4	2	1		2					
Carduelis pinus	Pine siskin											3							P				
Carduelis psaltria	Lesser goldfinch											5											
	Species Richness	10	5	9	8	9	5	3	4	5	3	16	6	7	6	6	4	3	8	7	4	8	4
	Number of Individuals	30	20	17	29	40	10	26	14	19	17	56	21	19	25	23	11	15	16	29	11	17	14
	Relative Abundance (Individuals/40 hectares)	514	192	357	311	439	295	223	153	203	350	915	290	290	372	193	193	167	275	407	260	343	500

Note: P=Present but not used in relative abundance calculations

Table B-2c
Bird Species Data Summary
Halophytic Phase Saltbush Scrub, Edwards AFB

Family / *Scientific Name*	Common Name	Transect Number 24	41	42	43	45	48	51	52	54	55	57	58	59	
Accipitridae - Hawks, etc.															
Circus cyaneus	Northern harrier							P					P		
Buteo jamaicensis	Red-tailed hawk						P								
														2	
Phasianidae - Fowl-like birds															
Callipepla californica	California quail									2		2		3	
Callipepla gambelii	Gambel's quail													4	
Charadriidae - Plovers															
Charadrius vociferus	Killdeer				1							4			
Columbidae - Pigeons, Doves															
Zenaida macroura	Mourning dove			2	2	5	1		2	2	2	1	1	10	
Zenaida asiatica	White-winged dove													2	
Trochilidae - Hummingbirds															
Calypte anna	Anna's hummingbird									2					
Picidae - Woodpeckers															
Picoides scalaris	Ladder-backed woodpecker					1	2								
Tyrannidae - Flycatchers															
Myiarchus cinerascens	Ash-throated flycatcher						3							2	
Tyrannus verticalis	Western kingbird									2				4	
Empidonax sp.	Empidonax flycatcher								1					1	
Alaudidae - Larks															
Eremophila alpestris	Horned lark	2	5	3	2	2	2	2		2	4	2	10		
Corvidae - Crows, Jays															
Corvus corax	Common raven			P	P		P		P		P	P	P		
Troglodytidae - Wrens															
Campylorhynchus brunneicapillus	Cactus wren			1											
Mimidae - Mockingbirds and Thrushes															
Oreoscoptes montanus	Sage thrasher		1												
Toxostoma lecontei	LeConte's thrasher		1												
Mimus polyglottos	Northern mockingbird			1					2					2	
Laniidae - Shrikes															
Lanius ludovicianus	Loggerhead shrike			1			1		2		1	2	1	1	
Sturnidae - Starlings															
Sturnis vulgaris	European starling			3		3	2	2	2			2		3	
Vireonidae - Vireos															
Vireo gilvus	Warbling vireo													1	
Emberizidae - Warblers, Sparrows and relatives															
Wilsonia pusilla	Wilson's warbler													1	
Piranga ludoviciana	Western tanager								1					1	
Spizella breweri	Brewer's sparrow		1							1				1	
Amphispiza belli	Sage sparrow	1	6	8	2	4	2	2	1	12	16	2	10	1	
Passerculus sandwichensis	Savannah sparrow									2					
Zonotrichia leucophrys	White-crowned sparrow		3											6	
Sturnella neglecta	Western meadowlark			5	2	3	1	2		2		4	2		
Icterus galbula	Northern oriole		1											1	
Fringillidae - Finches															
Carpodacus mexicanus	House finch					2	2							2	
	Species Richness (S)	2	7	8	5	7	9	4	7	4	4	8	5	19	7
	Number of Individuals (N)	3	18	24	9	20	16	8	11	27	23	19	24	48	
	Relative Abundance (Individuals/40 hectares)	80	351	315	230	200	278	167	247	420	127	296	181	657	273

Note: P = Present, but not included in density calculations

Table B-2d
Bird Species Data Summary
Arid Phase Saltbush Scrub, Edwards AFB

Family / *Scientific Name*	Common Name	Transect Number 1	2	8	10	11	12	14	15	40	44
Accipitridae - Hawks, etc.											
Buteo jamaicensis	Red-tailed hawk						P				
Columbidae - Pigeons, Doves											
Zenaida macroura	Mourning dove			1			4			1	
Picidae - Woodpeckers											
Picoides scalaris	Ladder-backed woodpecker										2
Tyrannidae - Flycatchers											
Myiarchus cinerascens	Ash-throated flycatcher						2				
Alaudidae - Larks											
Eremophila alpestris	Horned lark	11	4	6	2	2	1	6	11	2	15
Corvidae - Crows, Jays											
Corvus corax	Common raven			P			P	P		P	P
Troglodytidae - Wrens											
Campylorhynchus brunneicapillus	Cactus wren									2	
Mimidae - Mockingbirds and Thrashers											
Oreoscoptes montanus	Sage thrasher				1						2
Toxostoma lecontei	LeConte's thrasher		2							2	
Laniidae - Shrikes											
Lanius ludovicianus	Loggerhead shrike									1	
Sturnidae - Starlings											
Sturnus vulgaris	European starling									2	
Emberizidae - Warblers, Sparrows and relatives											
Spizella breweri	Brewer's sparrow		1		1	2			4		1
Amphispiza belli	Sage sparrow	6	4	3	12	6	8	12	6	2	11
Zonotrichia leucophrys	White-crowned sparrow				2	1					12
Sturnella neglecta	Western meadowlark			2	2						2
Passerculus sandwichensis	Savannah sparrow		1						2		
Fringillidae - Finches											
Carpodacus mexicanus	House finch									2	
	Species Richness (S)	2	5	4	6	4	4	2	4	8	7
	Number of Individuals (N)	17	12	12	20	11	15	18	23	14	45
	Relative Abundance (Individuals/40 hectares)	295	277	340	306	336	137	360	401	316	339

Note: P=Present, but not included in density calculations

Table B-2e
Bird Species Data Summary
Mesquite Woodland, Edwards AFB

Family *Scientific Name*	Common Name	Transect 53	Transect 56	Transect 60
Accipitridae - Hawks				
Accipiter cooperii	Cooper's hawk	----	P	----
Phasianidae - Fowl-like birds				
Callipepla californica	California quail	2	2	6
Callipepla gambelii	Gambel's quail	----	2	2
Columbidae - Pigeons, Doves				
Zenaida macroura	Mourning dove	9	6	4
Strigidae - Typical owls				
Bubo virginianus	Great horned owl	P	----	----
Trochilidae - Hummingbirds				
Calypte anna	Anna's hummingbird	----	1	----
Tyrannidae - Flycatchers				
Myiarchus cinerascens	Ash-throated flycatcher	----	1	----
Tyrannus verticalis	Western kingbird	----	1	2
Contopus sordidulus	Western wood pewee	----	1	----
Alaudidae - Larks				
Eremophila alpestris	Horned lark	2	6	7
Corridae - Crows, Jays				
Corvus corax	Common raven	2	P	P
Remizidae - Verdin				
Auriparus flaviceps	Verdin	----	1	----
Muscicapidae - Kinglets, Gnatcatchers, Thrushes				
Turdus migratorius	American robin	1	1	----
Laniidae - Shrikes				
Lanius ludovicianus	Loggerhead shrike	1	1	----
Sturnidae - Starlings				
Sturnus vulgaris	European starling	----	3	----
Emberizidae - Emberizids				
Dendroica occidentalis	Hermit warbler	----	1	----
Wilsonia pusilla	Wilson's warbler	3	1	1
Pheucticus melanocephalus	Black-headed grosbeak	1	1	----
Spizella breweri	Brewer's sparrow	1	1	2
Amphispiza bilineata	Black-throated sparrow	2	----	11
Amphispiza belli	Sage sparrow	1	1	2
Zonotrichia leucophrys	White-crowned sparrow	----	2	2
Sturnella neglecta	Western meadowlark			
Fringillidae - Finches				
Carpodacus mexicanus	House finch	----	2	7
	Species Richness	11	19	11
	Number of Individuals	25	35	46
	Relative Abundance (Individuals/40 hectares)	720	795	1,007

Note: P=Present but not used in relative abundance calculations.

Table B-3a
Large Mammal Data Summary
Joshua Tree Woodland, Edwards AFB

Family		Transect 4			Transect 5			Transect 7			Transect 17			Transect 25			Transect 26		
Scientific Name	Common Name	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3
Leporidae - Hares and Rabbits																			
Lepus californicus	Black-tailed jackrabbit	7	5	6	7	5	5	20	19	24	5	9	5	16	15	15	9	6	6
Sylvilagus audubonii	Desert cottontail	----	----	1	----	----	----	1	6	5	----	----	----	----	1	1	----	----	----
Sciuridae - Squirrels																			
Ammospermophilus leucurus	Antelope ground squirrel	----	----	----	----	1	----	1	2	1	----	----	----	----	----	----	----	----	----
Mustelidae - Weasels, Skunks, etc.																			
Taxidea taxus	American badger	----	1	----	----	----	----	----	----	1	----	----	----	----	----	----	----	1	----
Canidae - Dogs, Wolves, and Foxes																			
Canis latrans	Coyote	----	----	----	----	----	----	----	----	----	1	----	----	----	----	----	----	2	2
Vulpes macrotis	Desert kit fox	----	----	1	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	Species Richness		4			3			4			2			2			3	
	Number of Individuals		10			9			33			10			17			12	
	Relative Abundance (Individuals/3 hectares)		10			9			33			10			17			12	

Family		Transect 30			Transect 31			Transect 36			Transect 37			Transect 38			Transect 46		
Scientific Name	Common Name	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3
Leporidae - Hares and Rabbits																			
Lepus californicus	Black-tailed jackrabbit	9	8	5	9	11	11	9	9	6	12	12	12	9	8	5	11	10	10
Sylvilagus audubonii	Desert cottontail	----	----	----	----	1	----	----	----	2	----	3	3	----	5	----	1	----	----
Sciuridae - Squirrels																			
Ammospermophilus lecurus	Antelope ground squirrel	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Mustelidae - Weasels, Skunks, etc.																			
Taxidea taxus	American badger	----	----	----	1	----	1	----	----	----	----	----	----	----	----	----	----	----	----
Canidae - Dogs, Wolves, and Foxes																			
Canis latrans	Coyote	1	----	2	----	----	----	----	----	----	----	----	1	----	----	----	----	1	----
Vulpes macrotis	Desert kit fox	----	----	2	1	----	----	----	----	----	----	1	----	----	----	1	2	2	2
	Species Richness (S)		3			4			2			4			3			4	
	Number of Individuals (N)		13			14			11			17			15			15	
	Relative Abundance (Individuals/3 hectares)		13			14			11			17			15			15	

Note: T = data derived from track station - not used in species richness or relative abundance calculations.

Table B-3b
Large Mammal Species Data Summary
Creosote Bush Scrub, Edwards AFB

Family		Transect 3			Transect 6			Transect 9			Transect 13			Transect 16			Transect 18			Transect 19			Transect 20			Transect 21			Transect 22			Transect 23		
Scientific Name	Common Name	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3
Leporidae - Hares and Rabbits																																		
Lepus californicus	Black-tailed jackrabbit	8	7	6	---	6	6	3	6	6	11	20	17	7	9	5	5	10	8	15	10	15	10	6	11	13	10	15	9	11	13	5	6	4
Sylvilagus audubonii	Desert cottontail	3	2	2	----	----	----	1	----	1	----	2	2	2	----	3	----	----	----	2	3	6	1	1	2	----	----	1	----	----	----	2	2	1
Sciuridae - Squirrels																																		
Ammospermophilus leucurus	Antelope ground squirrel	----	----	----	----	----	----	1	2	2	----	1	----	----	1	----	----	----	----	----	----	2	1	1	----	----	----	1	2	----	1	----	----	3
Citellus beechyi	California ground squirrel	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Mustelidae - Weasels, Skunks, etc.																																		
Taxidea taxus	American badger	----	----	----	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Canidae - Dogs, Wolves, and Foxes																																		
Canis latrans	Coyote	----	----	----	----	1	----	----	----	----	----	----	1	----	----	----	1	2	1	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Vulpes macrotis	Desert kit fox	----	----	----	1	2	2	1	----	1	----	----	----	----	----	----	----	1	----	T	1	T	1	----	----	----	1	1	1	1	----	----	----	----
	Species Richness		2			4			4			4			3			3			5			4			4			3			3	
	Number of Individuals		11			10			10			24			13			13			25			15			18			16			11	
	Relative Abundance (Individuals/3 hectares)		11			10			10			24			13			13			25			15			18			16			11	

Family		Transect 27			Transect 28			Transect 29			Transect 32			Transect 33			Transect 34			Transect 35			Transect 39			Transect 47			Transect 49			Transect 50		
Scientific Name	Common Name	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3
Leporidae - Hares and Rabbits																																		
Lepus californicus	Black-tailed jackrabbit	8	4	7	10	9	5	6	3	4	13	16	12	11	9	11	9	8	2	4	4	2	16	16	17	12	9	9	6	5	12	5	6	9
Sylvilagus audubonii	Desert cottontail	3	----	----	----	1	1	----	----	----	----	----	1	----	1	----	1	1	----	----	1	----	1	4	4	3	----	1	----	----	----	----	1	----
Sciuridae - Squirrels																																		
Ammospermophilus leucurus	Antelope ground squirrel	----	----	3	----	1	----	1	----	1	----	1	2	----	----	1	2	2	1	----	----	1	2	2	2	----	----	----	----	----	----	----	----	----
Citellus beechyi	California ground squirrel	----	----	----	----	----	----	----	----	----	----	----	----	2	----	----	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Mustelidae - Weasels, Skunks, etc.																																		
Taxidea taxus	American badger	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	----	----	----	----	----
Canidae - Dogs, Wolves, and Foxes																																		
Canis latrans	Coyote	----	----	----	----	----	----	----	----	----	1	T	----	----	----	----	----	----	T	----	----	----	----	----	----	----	1	1	----	1	----	----	----	----
Vulpes macrotis	Desert kit fox	T	T	T	---	---	1	----	----	T	3	----	1	T	1	1	1	1	2	----	----	----	----	1	1	----	----	T	----	----	----	T	1	----
	Species Richness		3			4			2			5			5			5			3			4			4			2			3	
	Number of Individuals		14			13			7			23			16			15			6			24			17			13			11	
	Relative Abundance (Individuals/3 hectares)		14			13			7			23			16			15			6			24			17			13			11	

Table B-3c
Large Mammal Data Summary
Halophytic Phase Saltbush Scrub, Edwards AFB

Family		Transect 24			Transect 41			Transect 42			Transect 43			Transect 45			Transect 48			Transect 51		
Scientific Name	Common Name	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3
Leporidae - Hares and Rabbits																						
Lepus californicus	Black-tailed jackrabbit	9	8	5	7	7	7	14	8	8	10	9	10	9	14	10	7	14	16	15	16	17
Sylvilagus audubonii	Desert cottontail	----	2	1	----	----	----	1	----	----	1	3	1	1	2	1	----	2	1	1	4	2
Sciuridae - Squirrels																						
Ammospermophilus leucurus	Antelope ground squirrel	----	----	----	----	----	----	----	----	----	----	----	1	----	----	----	----	2	----	----	----	----
Mustelidae - Weasels, Skunks, etc.																						
Taxidea taxus	American badger	----	----	----	----	----	----	----	----	----	----	----	----	----	----	T	----	----	----	----	----	----
Felidae - Cats																						
Felis rufus	Bobcat	----	----	T	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Canidae - Dogs, Wolves, and Foxes																						
Canis latrans	Coyote	1	----	1	1	----	----	----	----	1	2	2	1	1	----	1	1	1	1	----	----	----
Vulpes macrotis	Desert kit fox	2	2	2	----	----	1	----	----	----	----	T	T	1	1	1	----	1	----	----	----	----
	Species Richness		4			3			3			4			5			5			2	
	Number of Individuals		14			9			16			16			18			22			21	
	Relative Abundance (Individuals/3 hectares)		14			9			16			16			18			22			21	

Family		Transect 52			Transect 54			Transect 55			Transect 57			Transect 58			Transect 59		
Scientific Name	Common Name	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3
Leporidae - Hares and Rabbits																			
Lepus californicus	Black-tailed jackrabbit	14	10	13	16	15	16	1	2	3	19	13	12	9	13	6	14	7	11
Sylvilagus audubonii	Desert cottontail	----	----	1	2	6	2	3	5	3	1	10	13	1	----	----	----	----	----
Sciuridae - Squirrels																			
Ammospermophilus leucurus	Antelope ground squirrel	----	1	----	----	----	----	1	----	----	----	----	----	----	----	----	----	----	1
Mustelidae - Weasels, Skunks, etc.																			
Taxidea taxus	American badger	----	----	T	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Felidae - Cats																			
Felis rufus	Bobcat	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Canidae - Dogs, Wolves, and Foxes																			
Canis latrans	Coyote	1	1	1	1	1	1	----	1	2	----	1	----	1	----	----	----	----	----
Vulpes macrotis	Desert kit fox	2	2	1	1	1	1	2	2	----	----	----	----	----	----	----	----	----	----
	Species Richness		5			4			5			3			3			2	
	Number of Individuals		19			24			13			33			15			15	
	Relative Abundance (Individuals/3 hectares)		19			24			13			33			15			15	

Table B-3d
Large Mammal Species Data Summary
Arid Phase Saltbush Scrub, Edwards AFB

Family / *Scientific Name*	Common Name	Transect 1			Transect 2			Transect 8			Transect 10			Transect 11			Transect 12			Transect 14			Transect 15			Transect 40			Transect 44		
		Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3
Leporidae - Hares and Rabbits																															
Lepus californicus	Black-tailed jackrabbit	11	11	8	4	5	5	21	17	24	8	7	12	3	6	4	17	17	20	14	14	13	4	8	10	6	7	7	11	7	9
Sylvilagus auduboni	Desert cottontail	----	3	3	----	----	1	1	----	2	----	----	----	----	----	----	11	10	16	----	2	----	1	----	----	3	3	4	2	----	----
Sciuridae - Squirrels																															
Ammospermophilus leucurus	Antelope ground squirrel	----	----	----	----	----	----	2	1	1	----	----	----	----	----	----	1	2	2	1	5	2	----	----	----	----	----	----	----	----	----
Citellus beecheyi	California ground squirrel	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	2	----	----	----	----	----	----	----	----	----	----	----
Mustelidae - Weasels, Skunks, etc.																															
Taxidea taxus	American badger	----	----	----	----	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Felidae - Cats																															
Felis rufus	Bobcat	----	----	----	----	----	----	----	----	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Canidae - Dogs, Wolves, and Foxes																															
Canis latrans	Coyote	----	----	----	----	----	----	----	----	----	1	1	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	1
Vulpes macrotis	Desert kit fox	----	----	----	1	1	1	----	----	1	1	1	1	T	----	----	T	1	----	----	----	----	1	----	1	T	----	T	----	----	----
	Species Richness		2			3			5			4			1			4			4			3			2			3	
	Number of Individuals		14			7			30			15			6			39			23			12			11			14	
	Relative Abundance (Individuals/3 hectares)		14			7			30			15			6			39			23			12			11			14	

Note: T= data derived from track station - not used in species richness or relative density calculations

Table B-3e
Large Mammal Data Summary
Mesquite Woodland, Edwards AFB

Family		Transect 53			Transect 56			Transect 60		
Scientific Name	Common Name	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3
Leporidae - Hares and Rabbits										
Lepus californicus	Black-tailed jackrabbit	2	8	7	10	13	10	9	12	11
Sylvilagus audubonii	Desert cottontail	15	15	18	6	8	8	----	----	1
Canidae - Dogs, Wolves, and Foxes										
Canis latrans	Coyote	1	1	1	1	1	1	----	1	----
Vulpes macrotis	Desert kit fox	----	----	1	2	1	1	----	----	----
	Species Richness		4			4			3	
	Number of Individuals		28			24			14	
	Relative Abundance (Individuals/3 hectares)		28			24			14	

Note: T=data derived from track station - not used in species richness or relative abundance calculations

Table B-4a
Small Mammal Data Summary
Joshua Tree Woodland, Edwards AFB

Family		Transect 4			Transect 5			Transect 7			Transect 17			Transect 25			Transect 26		
Scientific Name	Common Name	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3
Heteromyidae - Pocket mice, Kangaroo Rats, and Kangaroo Mice																			
Perognathus longimembris	Little pocket mouse	3	7	1	10	9	3	3	2	1	2	8	7	14	14	10	9	9	2
Perognathus sp.	Pocket mouse	----	----	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----
Dipodomys merriami	Merriam kangaroo rat	9	11	12	11	11	9	17	7	2	25	20	15	11	7	7	19	14	13
Dipodomys deserti	Desert kangaroo rat	2	----	----	1	----	----	----	----	----	----	----	1	----	----	----	----	----	----
Dipodomys panamintinus	Panamint kangaroo rat	1	2	1	1	2	2	16	12	4	----	----	----	3	4	5	14	3	2
Dipodomys microps	Great Basin kangaroo rat	----	----	----	----	----	----	4	8	2	----	----	----	----	----	----	----	----	----
Cricetidae - Rats and Mice																			
Peromyscus maniculatus	Deer mouse	10	7	4	6	3	7	14	8	8	6	3	9	3	5	4	22	19	16
Onychomys torridus	Grasshopper mouse	4	3	2	3	6	2	3	----	1	2	2	2	----	----	1	2	1	----
Neotoma lepida	Desert woodrat	14	4	4	2	----	1	16	8	6	1	----	----	----	----	----	3	1	1
	Species Richness		7			8			7			6			5			6	
	Number of Individuals		101			90			142			103			88			150	
	Relative Abundance (Individuals/1 hectare)		101			90			142			103			88			150	

Family		Transect 30			Transect 31			Transect 36			Transect 37			Transect 38			Transect 46		
Scientific Name	Common Name	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3
Heteromyidae - Pocket mice, Kangaroo Rats, and Kangaroo Mice																			
Perognathus longimembris	Little pocket mouse	15	6	2	3	3	2	7	2	3	12	7	4	1	4	1	12	3	1
Perognathus sp.	Pocket mouse	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Dipodomys merriami	Merriam kangaroo rat	25	23	9	27	36	33	33	22	20	38	20	18	9	7	8	16	14	11
Dipodomys deserti	Desert kangaroo rat	----	----	----	----	1	----	----	----	----	2	2	3	----	----	----	----	----	1
Dipodomys panamintinus	Panamint kangaroo rat	12	4	6	4	2	4	2	2	2	1	1	1	14	12	4	3	1	3
Dipodomys microps	Great Basin kangaroo rat	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Cricetidae - Rats and Mice																			
Peromyscus maniculatus	Deer mouse	23	13	20	22	16	3	8	7	2	5	1	3	11	17	13	28	16	20
Onychomys torridus	Grasshopper mouse	4	----	1	1	2	----	3	----	2	2	2	----	1	1	1	2	1	----
Neotoma lepida	Desert woodrat	4	1	----	3	1	----	2	1	1	1	----	----	----	----	----	3	2	1
	Species Richness		6			7			6			7			5			6	
	Number of Individuals		168			163			119			123			104			138	
	Relative Abundance (Individuals/3 hectares)		168			163			119			123			104			138	

Notes: only new captures from each day have been represented and all data are based on 300 trap nights.

Table B-4b
Small Mammal Data Summary
Creosote Bush Scrub, Edwards AFB

Family / Scientific Name	Common Name	Transect 3			Transect 6			Transect 9			Transect 13			Transect 16			Transect 18			Transect 19			Transect 20			Transect 21			Transect 22			Transect 23		
		Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3
Heteromyidae - Pocket mice, Kangaroo Rats, and Kangaroo Mice																																		
Perognathus longimembris	Little pocket mouse	4	4	----	2	7	5	----	----	----	----	1	3	2	2	2	2	1	2	----	----	----	----	----	----	----	----	----	----	1	---	---	---	---
Perognathus sp.	Pocket mouse	----	2	1	1	1	2	4	----	1	----	1	1	----	----	1	----	----	----	----	1	4	----	2	1	----	----	----	----	2	1	----	2	2
Perognathus formosus	Long-tailed pocket mouse	----	----	----	----	----	----	9	4	7	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	10	9	5
Dipodomys panamintinus	Panamint kangaroo rat	2	6	5	----	----	----	----	1	1	5	9	11	----	1	1	10	4	----	2	----	----	----	----	----	1	1	----	----	----	----	1	----	2
Dipodomys merriami	Merriam kangaroo rat	7	4	5	11	10	10	22	10	9	38	14	6	38	27	17	13	14	8	42	30	11	47	29	9	15	6	2	38	11	18	7	15	7
Dipodomys microps	Great Basin kangaroo rat	----	----	----	----	----	----	----	----	----	----	2	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	1	2
Cricetidae - Rats and Mice																																		
Peromyscus maniculatus	Deer mouse	4	6	6	2	1	----	14	18	5	3	1	2	5	4	5	3	2	2	4	2	1	12	16	9	46	36	29	1	----	----	3	8	5
Onychomys torridus	Grasshopper mouse	8	1	2	1	3	1	10	5	3	4	4	----	1	1	1	5	1	4	2	----	1	1	----	----	1	4	2	----	----	----	4	1	2
Neotoma lepida	Desert woodrat	----	----	1	----	----	----	1	----	1	6	2	2	----	----	----	----	1	2	----	----	----	----	----	----	1	3	2	----	----	----	----	----	----
	Species Richness		7			5			7			8			6			6			5			4			5			4			7	
	Number of Individuals		68			57			125			115			108			74			100			126			149			72			87	
	Relative Abundance (Individuals/1 hectare)		68			57			125			115			108			74			100			126			149			72			87	

Family / Scientific Name	Common Name	Transect 27			Transect 28			Transect 29			Transect 32			Transect 33			Transect 34			Transect 35			Transect 39			Transect 47			Transect 49			Transect 50		
		Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3
Heteromyidae - Pocket mice, Kangaroo Rats, and Kangaroo Mice																																		
Perognathus longimembris	Little pocket mouse	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	3	----	1	----	----	----	----	----	----	16	12	7	2	----	1	11	4	5
Perognathus sp.	Pocket mouse	2	3	4	1	----	1	----	1	3	2	1	3	----	----	1	1	3	----	----	1	1	----	----	----	----	----	----	1	----	----	----	----	----
Perognathus formosus	Long-tailed pocket mouse	----	----	----	----	----	----	1	1	3	----	----	----	----	----	----	1	1	2	9	7	1	----	5	2	2	3	3	----	----	----	3	2	3
Dipodomys panamintinus	Panamint kangaroo rat	----	2	----	2	3	3	1	----	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	5	5	1	2	1	2
Dipodomys merriami	Merriam kangaroo rat	34	24	6	50	26	10	27	5	5	32	17	13	35	20	24	23	17	13	20	14	7	5	21	16	36	24	17	20	20	14	47	21	10
Dipodomys microps	Great Basin kangaroo rat	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Cricetidae - Rats and Mice																																		
Peromyscus maniculatus	Deer mouse	3	3	3	7	3	5	3	1	----	----	1	----	7	7	7	12	12	6	5	2	4	7	5	16	6	5	4	23	14	8	3	1	4
Onychomys torridus	Grasshopper mouse	----	----	1	1	2	----	----	----	4	1	2	----	2	6	3	1	----	1	3	4	2	----	1	1	2	3	2	2	2	2	2	----	1
Neotoma lepida	Desert woodrat	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	1	----	----	----	2	1	1	----	----	----
	Species Richness		5			5			6			5			4			6			5			5.0			6			7			6	
	Number of Individuals		85			114			55			73			112			97			80			81.0			143			124			122	
	Relative Abundance (Individuals/1 hectare)		85			114			55			73			112			97			80			81.0			143			124			122	

Note: only new captures from each day have been represented and all data are based on 300 trap nights.

Table B-4c
Small Mammal Data Summary
Halophytic Phase Saltbush Scrub, Edwards AFB

Family		Transect 24			Transect 41			Transect 42			Transect 43			Transect 45			Transect 48			Transect 51		
Scientific Name	Common Name	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3
Heteromyidae - Pocket mice, Kangaroo Rats, and Kangaroo Mice																						
Perognathus longimembris	Little pocket mouse	4	5	1	6	1	4	----	3	1	2	2	1	----	----	----	1	----	----	----	1	----
Dipodomys panamintinus	Panamint kangaroo rat	----	----	----	4	1	2	----	----	4	1	2	----	3	1	----	3	3	----	15	3	4
Dipodomys merriami	Merriam kangaroo rat	22	4	4	28	13	21	14	19	11	12	5	6	5	3	----	3	4	----	4	2	1
Dipodomys microps	Great Basin kangaroo rat	10	4	1	----	----	----	2	2	1	9	7	5	6	1	1	5	8	2	13	11	8
Dipodomys deserti	Desert kangaroo rat	----	----	----	1	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
Cricetidae - Rats and Mice																						
Peromyscus maniculatus	Deer mouse	2	3	2	16	4	5	14	7	7	16	13	10	12	14	12	7	10	8	21	9	9
Onychomys torridus	Grasshopper mouse	----	1	----	----	----	----	----	----	1	2	2	2	----	----	----	1	1	3	----	1	----
Neotoma lepida	Desert woodrat	----	----	1	----	----	----	----	1	----	----	----	1	1	----	----	2	2	1	3	----	1
Reithrodontomys megalotis	Western harvest mouse	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	----	----	----	----	----
Microtus californicus	California meadow mouse	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	Species Richness		6			5			7			7			6			7			7	
	Number of Individuals		64			107			87			98			60			64			106	
	Relative Abundance (Individuals/1 hectare)		64			107			87			98			60			64			106	

Family		Transect 52			Transect 54			Transect 55			Transect 57			Transect 58			Transect 59		
Scientific Name	Common Name	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3
Heteromyidae - Pocket mice, Kangaroo Rats, and Kangaroo Mice																			
Perognathus longimembris	Little pocket mouse	----	----	1	----	2	1	----	----	----	----	----	----	----	----	----	----	----	----
Dipodomys panamintinus	Panamint kangaroo rat	19	4	1	3	9	9	3	----	----	4	2	2	4	----	----	33	11	11
Dipodomys merriami	Merriam kangaroo rat	11	10	10	5	4	6	11	18	10	19	3	2	9	11	5	9	----	----
Dipodomys microps	Great Basin kangaroo rat	13	7	6	----	----	----	14	10	10	11	4	3	8	14	13	10	5	2
Dipodomys deserti	Desert kangaroo rat	1	----	----	----	----	----	1	1	----	----	----	----	----	----	----	----	----	----
Cricetidae - Rats and Mice																			
Peromyscus maniculatus	Deer mouse	21	8	19	12	9	9	22	10	16	31	13	10	29	22	13	15	12	7
Onychomys torridus	Grasshopper mouse	----	----	1	----	2	1	----	1	----	----	1	----	----	----	1	----	1	----
Neotoma lepida	Desert woodrat	----	----	----	2	1	1	1	3	----	9	3	3	1	1	----	11	4	6
Reithrodontomys megalotis	Western harvest mouse	----	----	----	----	----	----	----	----	----	----	----	----	1	----	----	----	----	----
Microtus californicus	California meadow mouse	----	----	----	----	----	----	----	----	----	----	----	1	----	----	----	----	----	----
	Species Richness		7			6			7			7			7			6	
	Number of Individuals		132			76			131			121			132			137	
	Relative Abundance (Individuals/1 hectare)		132			76			131			121			132			137	

Table B-4d
Small Mammal Species Data Summary
Arid Phase Saltbush Scrub, Edwards AFB

Family		Transect 1			Transect 2			Transect 8			Transect 10			Transect 11			Transect 12			Transect 14			Transect 15			Transect 40			Transect 44		
Scientific Name	Common Name	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3
Heteromyidae - Pocket mice, Kangaroo Rats, and Kangaroo Mice																															
Perognathus longimembris	Little pocket mouse	1	----	----	12	8	7	----	----	----	4	----	3	11	11	8	1	3	4	1	1	----	----	----	----	1	2	2	6	----	2
Perognathus sp.	Pocket mouse	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	1	----	1	2	6	1	3	2	1	3	1	----	----	1
Dipodomys panamintinus	Panamint kangaroo rat	6	2	----	----	----	----	9	3	3	----	----	----	----	----	----	8	4	3	12	12	8	1	2	----	----	----	----	1	1	----
Dipodomys merriami	Merriam kangaroo rat	23	12	11	7	6	5	5	4	2	24	5	5	5	1	4	2	5	3	14	6	7	9	9	9	25	20	9	54	34	27
Dipodomys microps	Great Basin kangaroo rat	----	----	----	1	3	1	----	----	----	8	3	3	----	----	----	14	15	5	----	----	----	----	----	----	----	----	----	----	----	----
Cricetidae - Rats and Mice																															
Peromyscus maniculatus	Deer mouse	16	24	15	----	----	2	33	39	27	9	8	1	1	1	2	22	3	9	15	6	10	2	2	----	7	9	6	16	5	8
Onychomys torridus	Grasshopper mouse	6	4	4	2	2	1	1	----	1	1	2	----	1	----	----	6	1	3	3	1	1	6	1	5	2	1	2	4	1	2
Neotoma lepida	Desert woodrat	----	----	----	----	----	----	1	1	2	----	----	----	----	----	----	3	----	1	----	----	----	----	----	1	----	----	----	1	1	----
Reithrodontomys megalotis	Western harvest mouse	----	----	----	----	----	----	----	1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
	Species Richness		5			5			6			5			4			8			6			6			5			7	
	Number of Individuals		124			57			132			76			45			116			106			53			91			164	
	Relative Abundance (Individuals/1 hectare)		124			57			132			76			45			116			106			53			91			164	

Table B-4e
Small Mammal Data Summary
Mesquite Woodland, Edwards AFB

Family / *Scientific Name*	Common Name	Transect 53			Transect 56			Transect 60		
		Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3
Heteromyidae - Pocket mice, Kangaroo Rats, and Kangaroo Mice										
Dipodomys merriami	Merriam kangaroo rat	1	2	1	4	1	1	5	4	----
Dipodomys microps	Great Basin kangaroo rat	----	----	----	12	2	1	4	----	1
Dipodomys panamintinus	Panamint kangaroo rat	5	4	1	7	3	----	14	----	4
Cricetidae - Rats and Mice										
Peromyscus maniculatus	Deer mouse	22	14	12	35	26	20	34	25	24
Onychomys torridus	Grasshopper mouse	----	----	----	----	----	----	1	1	----
Neotoma lepida	Desert woodrat	21	13	7	13	13	9	28	7	10
Reithrodontomys megalotis	Western harvest mouse	----	----	----	----	1	2	----	1	----
Mirotus californicus	California meadow mouse	1	----	----	----	----	----	----	----	----
	Species Richness		5			6			7	
	Number of Individuals		104			150			163	
	Relative Abundance (Individuals/1 hectare)		104			150			163	

Notes: only new captures from each day have been represented and all data are from 300 trap nights.

APPENDIX C

Habitat Quality Analysis Results

C-1 Joshua Tree Woodland
C-2 Creosote Bush Scrub
C-3 Halophytic Phase Saltbush Scrub
C-4 Arid Phase Saltbush Scrub
C-5 Mesquite Woodland

Table C-1
Descending Habitat Quality Assessment, Edwards AFB
Joshua Tree Woodland

Criteria	Assigned Weighting	Theoretical Prime	Joshua Tree Woodland Transects											
			4	5	7	17	25	26	30	31	36	37	38	46
A. Species of Special Concern	22.22%	41.00	24.00	21.00	**41.00**	30.00	31.00	30.00	35.00	19.00	25.00	26.00	25.00	21.00
B. Species Richness														
Plants	5.56%	48.50	**48.50**	28.50	24.50	16.00	20.50	27.50	28.00	23.00	27.00	25.00	14.50	23.00
Herpetofauna	5.56%	5.00	**5.00**	4.00	3.00	3.00	4.00	2.00	1.00	3.00	2.00	3.00	3.00	2.00
Birds	11.11%	15.00	8.00	**15.00**	8.00	7.00	8.00	10.00	8.00	14.00	5.00	7.00	7.00	9.00
Large Mammals	2.78%	4.00	**4.00**	**4.00**	2.00	2.00	**4.00**	3.00	**4.00**	3.00	3.00	2.00	**4.00**	3.00
Small Mammals	2.78%	8.00	7.00	6.00	6.00	6.00	7.00	6.00	7.00	6.00	5.00	5.00	7.00	**8.00**
C. Species Relative Abundance														
Herpetofauna	5.56%	15.00	11.00	13.00	**15.00**	9.00	11.00	4.00	5.00	8.00	5.00	8.00	5.00	3.00
Birds	11.11%	585.00	266.00	**585.00**	432.00	516.00	511.00	451.00	369.00	445.00	489.00	583.00	276.00	336.00
Large Mammals	2.78%	33.00	**33.00**	15.00	10.00	11.00	17.00	13.00	14.00	12.00	15.00	17.00	10.00	9.00
Small Mammals	2.78%	168.00	142.00	138.00	103.00	119.00	123.00	**168.00**	163.00	150.00	104.00	88.00	101.00	90.00
D. Vegetation Structure														
Percent Cover of Terrestrial Surface	7.41%	79.90	**79.90**	27.42	40.54	50.72	40.83	37.96	36.91	31.23	71.53	43.73	61.58	45.12
Percent Cover of Shrub Layer	7.41%	29.49	**29.49**	15.56	11.61	16.90	13.71	9.81	6.72	12.41	8.05	14.28	14.01	9.89
Percent Cover of Tree Canopy	7.41%	11.16	**11.16**	7.67	6.75	8.30	1.10	8.65	9.10	5.45	8.65	3.95	4.55	7.60
E. Proportion of Native Plant Species	5.56%	93.98	91.68	93.04	**93.98**	90.89	90.24	90.99	91.00	87.12	90.83	88.00	86.78	89.09
Habitat Quality Analysis Index	100.00%	1.00	0.77	0.72	0.71	0.66	0.65	0.64	0.64	0.60	0.60	0.61	0.56	0.54

Notes: The highest value for each criterion is indicated by bold. Theoretical primes are created from the highest values.

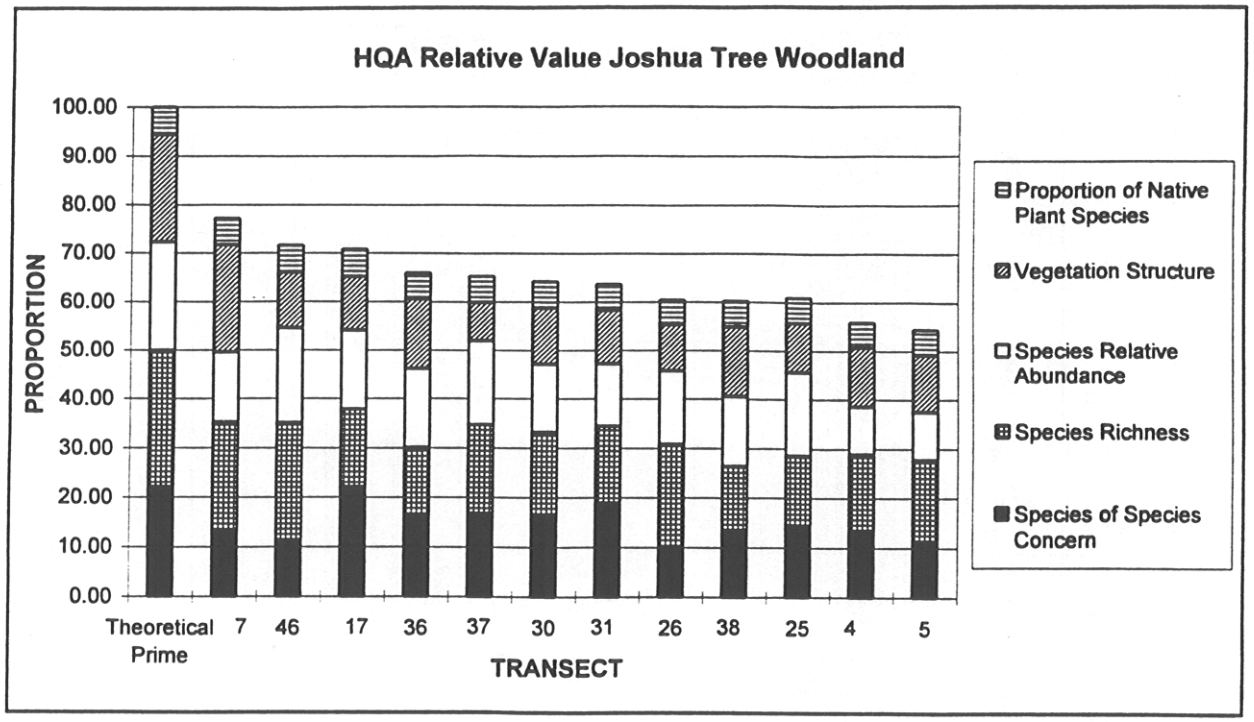

HQA Relative Value Joshua Tree Woodland
PROPORTION
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Theoretical Prime
7
46
17
36
37
30
31
26
38
25
4
5
TRANSECT
Proportion of Native Plant Species
Vegetation Structure
Species Relative Abundance
Species Richness
Species of Species Concern

Table C-2
Descending Habitat Quality Assessment, Edwards AFB
Creosote Bush Scrub

Criteria	Assigned Weighting	Theoretical Prime	Creosote Bush Scrub Transects																					
			3	6	9	13	16	18	19	20	21	22	23	27	28	29	32	33	34	35	39	47	49	50
A. Species of Special Concern	22.22%	35.00	16.00	29.00	20.00	24.00	30.00	21.00	20.00	21.00	21.00	21.00	16.00	16.00	30.00	**35.00**	26.00	25.00	20.00	19.00	21.00	24.00	29.00	20.00
B. Species Richness																								
Plants	5.56%	46.00	21.50	20.50	25.50	**46.00**	39.00	24.50	35.00	37.50	41.00	42.00	28.00	32.00	42.50	27.00	36.00	32.50	30.00	27.00	30.50	24.50	27.50	27.50
Herpetofauna	5.56%	6.00	5.00	5.00	3.00	5.00	3.00	2.00	3.00	2.00	2.00	2.00	2.00	2.00	4.00	3.00	5.00	2.00	3.00	2.00	4.00	4.00	**6.00**	4.00
Birds	11.11%	16.00	10.00	5.00	9.00	8.00	9.00	5.00	3.00	4.00	5.00	3.00	**16.00**	6.00	7.00	6.00	6.00	4.00	3.00	8.00	7.00	4.00	8.00	4.00
Large Mammals	2.78%	5.00	2.00	4.00	4.00	4.00	3.00	3.00	**5.00**	4.00	4.00	3.00	3.00	3.00	4.00	2.00	**5.00**	**5.00**	**5.00**	3.00	4.00	4.00	2.00	3.00
Small Mammals	2.78%	8.00	7.00	5.00	7.00	**8.00**	6.00	6.00	5.00	4.00	5.00	7.00	7.00	5.00	5.00	6.00	5.00	4.00	6.00	5.00	5.00	6.00	7.00	6.00
C. Species Relative Abundance																								
Herpetofauna	5.56%	14.00	12.00	10.00	9.00	9.00	10.00	5.00	6.00	4.00	11.00	5.00	6.00	5.00	8.00	9.00	8.00	6.00	5.00	6.00	8.00	**14.00**	8.00	7.00
Birds	11.11%	915.00	514.00	192.00	357.00	311.00	439.00	295.00	223.00	153.00	203.00	350.00	**915.00**	290.00	290.00	372.00	193.00	193.00	167.00	275.00	407.00	260.00	343.00	500.00
Large Mammals	2.78%	25.00	11.00	10.00	10.00	24.00	13.00	13.00	**25.00**	15.00	18.00	16.00	11.00	14.00	13.00	7.00	23.00	16.00	15.00	6.00	24.00	17.00	13.00	11.00
Small Mammals	2.78%	149.00	68.00	57.00	125.00	115.00	108.00	74.00	100.00	126.00	**149.00**	72.00	87.00	85.00	114.00	55.00	73.00	112.00	97.00	80.00	81.00	143.00	124.00	122.00
D. Vegetation Structure																								
Percent Cover of Terrestrial Surface	11.11%	145.17	60.12	45.66	115.80	123.34	107.70	37.89	118.65	91.95	128.51	119.16	99.37	134.85	108.95	81.54	91.04	116.23	**145.17**	116.22	110.70	29.54	46.72	31.86
Percent Cover of Shrub Layer	11.11%	34.36	14.81	13.52	20.91	30.89	30.36	6.54	30.24	26.85	32.06	**34.36**	20.84	24.32	25.20	22.35	31.54	31.96	24.72	17.38	19.33	12.35	5.93	14.02
E. Proportion of Native Plant Species	5.56%	90.98	83.80	83.01	86.34	89.00	87.17	87.50	85.71	86.65	87.78	88.03	87.56	84.38	88.19	88.83	86.11	84.52	83.31	85.00	83.60	83.61	**90.98**	85.22
Habitat Quality Analysis Index	100.00%	1.00	0.56	0.54	0.62	0.73	0.73	0.44	0.60	0.55	0.65	0.61	0.67	0.55	0.69	0.64	0.66	0.62	0.58	0.54	0.62	0.54	0.59	0.51

Notes: The highest value for each criterion is indicated by bold. Theoretical primes are created from the highest values.

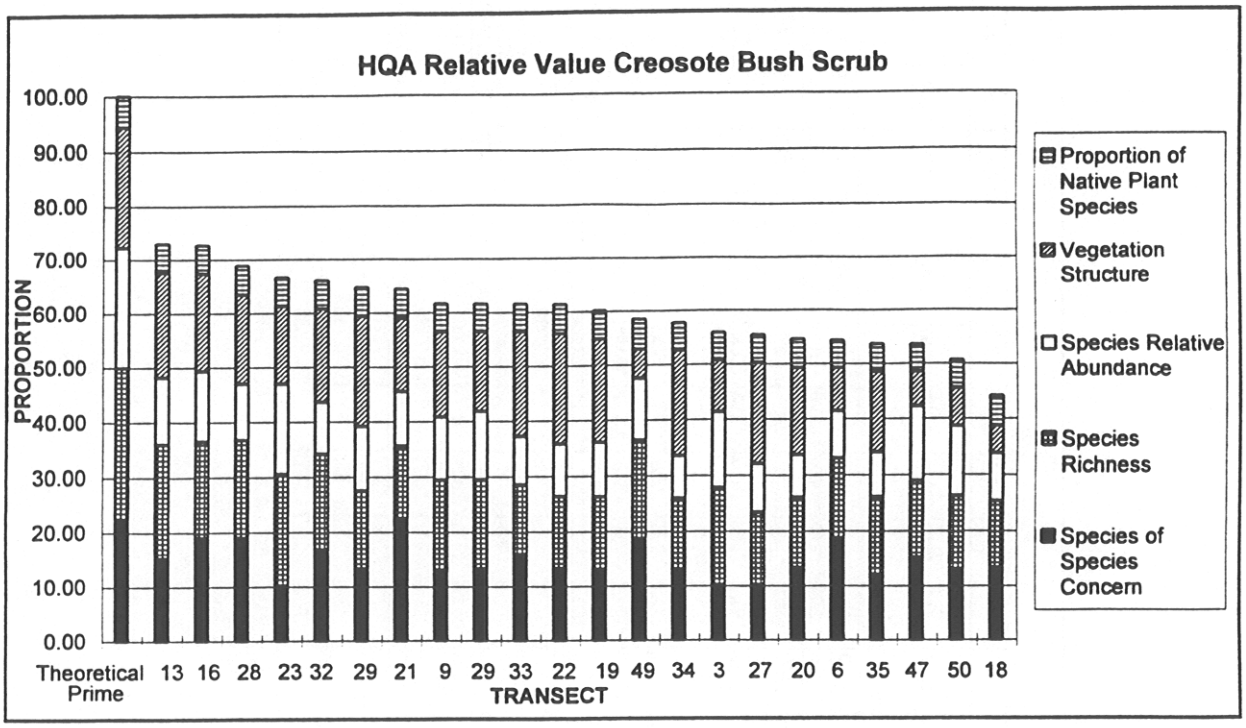

HQA Relative Value Creosote Bush Scrub
PROPORTION
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Theoretical Prime
13
16
28
23
32
29
21
9
29
33
22
19
49
34
3
27
20
6
35
47
50
18
TRANSECT
Proportion of Native Plant Species
Vegetation Structure
Species Relative Abundance
Species Richness
Species of Species Concern

Table C-3
Descending Habitat Qualtiy Assessment, Edwards AFB
Halophytic Phase Saltbush Scrub

Criteria	Assigned Weighting	Theoretical Prime	Halophytic Phase Saltbush Scrub Transects												
			41	42	43	45	48	51	52	54	55	57	58	58	59
A. Species of Special Concern	22.22%	38.00	26.00	**38.00**	26.00	27.00	28.00	24.00	27.00	21.00	22.00	11.00	36.00	30.00	16.00
B. Species Richness															
Plants	5.56%	36.50	16.00	**36.50**	26.00	27.50	22.50	21.00	31.00	26.50	32.50	31.50	26.50	27.00	26.00
Herpetofauna	5.56%	5.00	2.00	**5.00**	3.00	4.00	4.00	3.00	2.00	3.00	3.00	4.00	2.00	4.00	2.00
Birds	11.11%	18.00	7.00	8.00	5.00	7.00	9.00	4.00	7.00	4.00	4.00	8.00	5.00	2.00	**18.00**
Large Mammals	2.78%	5.00	3.00	3.00	4.00	**5.00**	**5.00**	2.00	**5.00**	4.00	**5.00**	3.00	3.00	4.00	2.00
Small Mammals	2.78%	7.00	5.00	**7.00**	**7.00**	6.00	**7.00**	**7.00**	**7.00**	6.00	**7.00**	**7.00**	**7.00**	6.00	6.00
C. Species Relative Abundance															
Herpetofauna	5.56%	17.00	4.00	12.00	13.00	**17.00**	15.00	8.00	7.00	8.00	6.00	10.00	6.00	10.00	9.00
Birds	11.11%	644.00	351.00	315.00	230.00	200.00	278.00	167.00	247.00	420.00	127.00	296.00	181.00	80.00	**644.00**
Large Mammals	2.78%	33.00	9.00	16.00	16.00	18.00	22.00	21.00	19.00	24.00	13.00	**33.00**	15.00	14.00	15.00
Small Mammals	2.78%	137.00	107.00	87.00	98.00	60.00	64.00	106.00	132.00	76.00	131.00	121.00	132.00	64.00	**137.00**
D. Vegetation Structure															
Percent Cover of Terrestrial Surface	11.11%	81.29	43.68	79.53	41.95	55.16	33.50	**81.29**	51.24	73.43	64.93	43.66	71.50	20.60	68.07
Percent Cover of Shrub Layer	11.11%	25.00	8.91	12.58	9.78	11.26	6.42	19.42	12.92	8.22	9.09	15.25	13.65	**25.00**	10.60
E. Proportion of Native Plant Species	5.56%	87.10	84.12	86.09	84.41	83.67	82.21	73.61	86.97	81.07	83.25	78.93	81.13	**87.10**	80.65
Habitat Quality Analysis Index	100.00%	1.00	0.53	0.77	0.58	0.64	0.61	0.61	0.62	0.59	0.55	0.56	0.65	0.59	0.67

Notes: The highest value for each criterion is indicated by bold. Theoretical primes are created from the highest values.

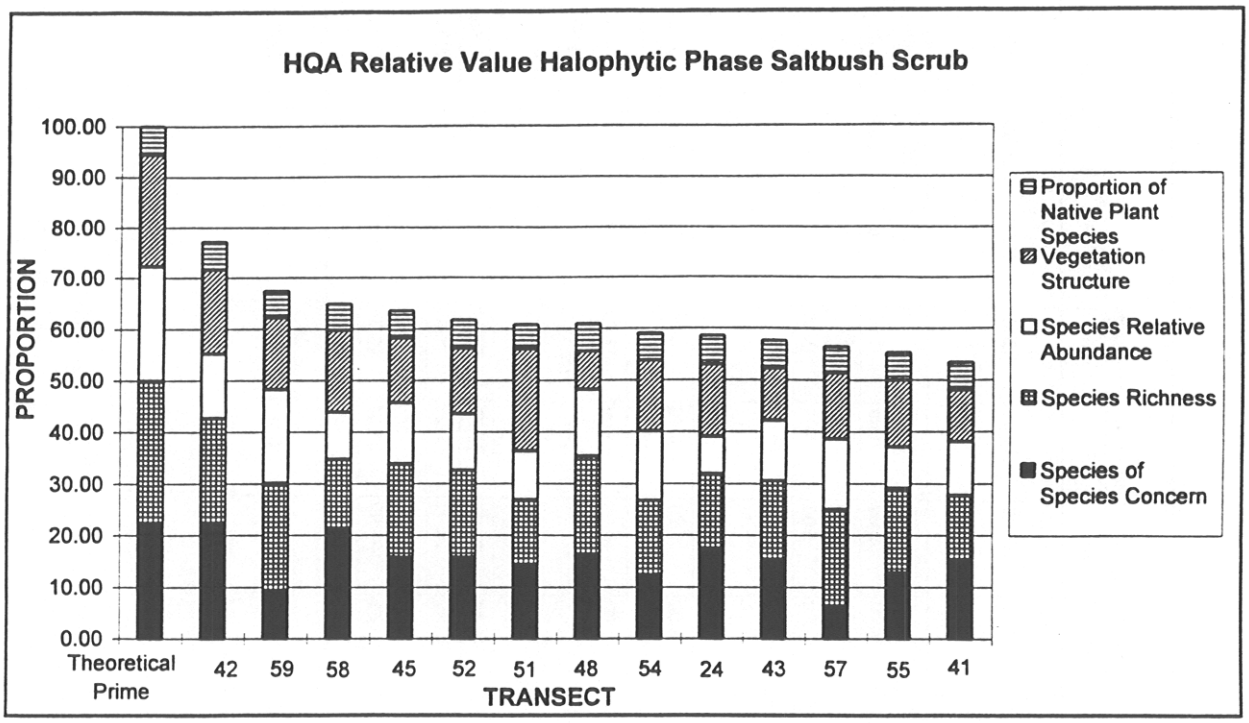

HQA Relative Value Halophytic Phase Saltbush Scrub
PROPORTION
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Theoretical Prime
42
59
58
45
52
51
48
54
24
43
57
55
41
TRANSECT
Proportion of Native Plant Species
Vegetation Structure
Species Relative Abundance
Species Richness
Species of Species Concern

Table C-4
Descending Habitat Quality Assessment, Edwards AFB
Arid Phase Saltbush Scrub

Criteria	Assigned Weighting	Theoretical Prime	Arid Phase Saltbush Scrub Transects									
			1	2	8	10	11	12	14	15	40	44
A. Species of Special Concern	22.22%	32.00	29.00	21.00	**32.00**	23.00	16.00	28.00	15.00	26.00	26.00	16.00
B. Species Richness												
Plants	5.56%	53.50	26.00	25.50	47.50	27.50	29.50	**53.50**	23.50	23.50	23.50	31.50
Herpetofauna	5.56%	4.00	3.00	3.00	2.00	2.00	2.00	**4.00**	3.00	**4.00**	**4.00**	2.00
Birds	11.11%	8.00	2.00	5.00	4.00	6.00	4.00	4.00	2.00	4.00	**8.00**	7.00
Large Mammals	2.78%	5.00	2.00	3.00	**5.00**	4.00	1.00	4.00	4.00	3.00	2.00	3.00
Small Mammals	2.78%	8.00	5.00	5.00	6.00	5.00	4.00	**8.00**	6.00	6.00	5.00	7.00
C. Species Relative Abundance												
Herpetofauna	5.56%	14.00	10.00	8.00	5.00	6.00	9.00	11.00	7.00	12.00	**14.00**	6.00
Birds	11.11%	401.00	295.00	277.00	340.00	306.00	336.00	137.00	360.00	**401.00**	316.00	339.00
Large Mammals	2.78%	39.00	14.00	7.00	30.00	15.00	6.00	**39.00**	23.00	12.00	11.00	14.00
Small Mammals	2.78%	164.00	124.00	57.00	132.00	76.00	45.00	116.00	106.00	53.00	91.00	**164.00**
D. Vegetation Structure												
Percent Cover of Terrestrial Surface	11.11%	119.97	101.58	33.56	**119.97**	40.94	40.62	79.74	86.06	73.01	106.63	26.00
Percent Cover of Shrub Layer	11.11%	20.75	10.18	11.35	20.33	18.34	14.95	**20.75**	12.42	14.38	12.77	9.70
E. Proportion of Native Plant Species	5.56%	92.01	86.61	**92.01**	89.46	79.44	90.05	91.60	82.97	87.23	82.97	90.28
Habitat Quality Analysis Index	100.00%	1.00	0.68	0.59	0.84	0.66	0.56	0.78	0.60	0.73	0.78	0.60

Notes: The highest value for each criterion is indicated by bold. Theoretical primes are created from the highest values.

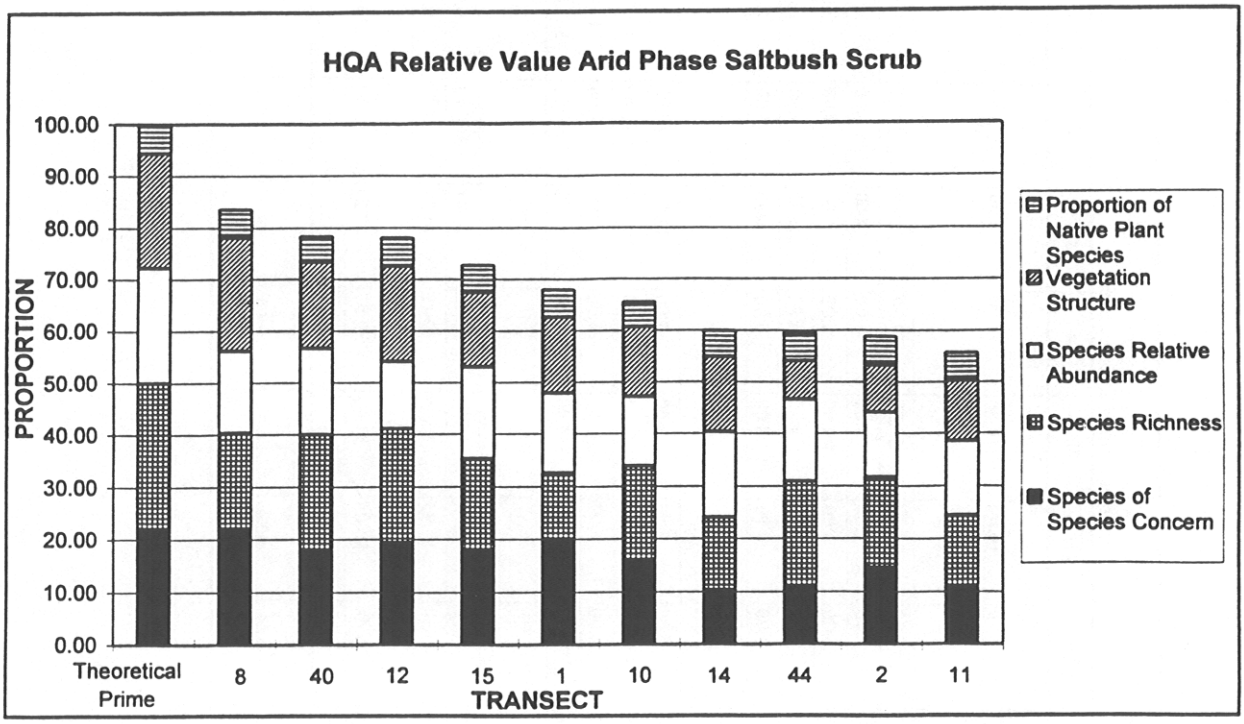
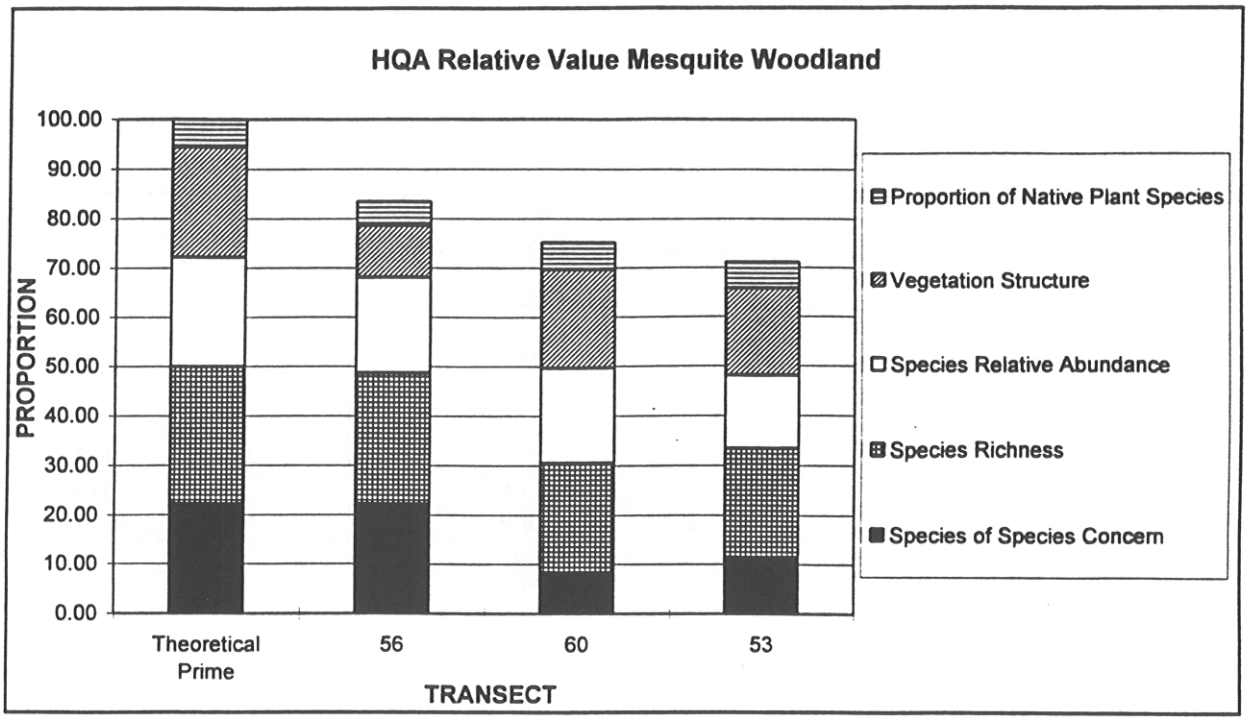

HQA Relative Value Arid Phase Saltbush Scrub
PROPORTION
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Theoretical Prime
8
40
12
15
1
10
14
44
2
11
TRANSECT
Proportion of Native Plant Species
Vegetation Structure
Species Relative Abundance
Species Richness
Species of Species Concern

Table C-5
Descending Habitat Quality Assessment, Edwards AFB
Mesquite Woodland

Criteria	Assigned Weighting	Theoretical Prime	Mesquite Woodland Transects		
			53	56	60
A. Species of Special Concern	22.22%	29.00	**29.00**	11.00	15.00
B. Species Richness					
Plants	5.56%	25.50	21.50	**25.50**	22.00
Herpetofauna	5.56%	3.00	**3.00**	**3.00**	**3.00**
Birds	11.11%	18.00	**18.00**	10.00	11.00
Large Mammals	2.78%	4.00	**4.00**	3.00	**4.00**
Small Mammals	2.78%	7.00	6.00	**7.00**	5.00
C. Species Relative Abundance					
Herpetofauna	5.56%	16.00	**16.00**	11.00	6.00
Birds	11.11%	994.00	787.00	**994.00**	720.00
Large Mammals	2.78%	28.00	24.00	14.00	**28.00**
Small Mammals	2.78%	163.00	150.00	**163.00**	104.00
D. Vegetation Structure					
Percent Cover of Terrestrial Surface	7.41%	81.68	68.14	77.37	**81.68**
Percent Cover of Shrub Layer	7.41%	18.78	6.59	14.24	**18.78**
Percent Cover of Tree Canopy	7.41%	29.52	7.35	**29.52**	11.50
E. Proportion of Native Plant Species	5.56%	76.38	67.42	**76.38**	72.50
Habitat Quality Analysis Index	100.00%	1.00	0.84	0.75	0.71

Notes: The highest value for each criterion is indicated by bold. Theoretical primes are created from the highest values.


HQA Relative Value Mesquite Woodland
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
PROPORTION
Theoretical Prime
56
60
53
TRANSECT
Proportion of Native Plant Species
Vegetation Structure
Species Relative Abundance
Species Richness
Species of Species Concern